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J. H. BOARDMAN, B.A., LOND., L.C.P.

Principal of Douglas Pupil Teachers' Centre.

Author of *Practical School Method*, *The Educational Ideas of Froebel and Pestalozzi*, *Grammatical Terms Explained*, *Notes on Scott's Kenilworth* and on *Palgrave's Golden Treasury of Songs and Lyrics*, etc. Editor of *Barke's Thoughts on the Causes of the Present Discontent*, *Milton's L'Allegre*, *Spenser's Faerie Queene*, *Quintus Curtius' History of Alexander the Great*, *Shakespeare's King John*, etc. Translator of *Demosthenes' Adversus Leptinem*, *Quintus Curtius' History of Alexander the Great*, *Sweet's Anglo-Saxon Reader*, etc. etc.

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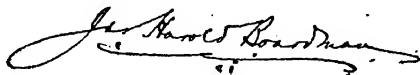
PREFACE.

THIS book has been specially prepared to cover the latest requirements in School Organisation for the Certificate Examination of the Board of Education; but although these requirements have necessarily limited the treatment of organisation mainly to Elementary Schools, it is hoped that the work will also be found useful by candidates preparing for the Teacher's Diploma examinations of the London, Victoria, and Cambridge Universities, and the College of Preceptors.

In the present edition the work has been thoroughly revised, and all the latest requirements of the Board of Education and other important Educational Authorities have been embodied in the various chapters.

I have endeavoured to present the subject as far as possible from a *practical* standpoint, and the theoretical side has been referred to only as far as it has been found necessary to emphasise and explain the practical. The plans and methods indicated are the outcome of actual experience derived from a twofold source—the training of teachers as well as the teaching of children; and special care has been taken to fully explain all points which experience has proved to be difficult for students to understand.

A fairly comprehensive selection of examination questions proposed by the Board of Education and other examining bodies has been appended to each chapter, and will serve to give the student direction in his reading as well as to afford a means of testing his progress.



J. Harold Boardman

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Practical School Organisation.

CHAPTER I.

INTRODUCTION.

MEANING AND PURPOSE.—Organisation is that branch of School Management which deals with all the arrangements necessary for successfully carrying on the work of a school. Its purpose is to place every scholar and every teacher under the best conditions possible for effective work throughout the school day.

Scope.—If both teachers and scholars are to be so placed that school work may be carried on with the maximum amount of efficiency and comfort, and with the least possible waste of time, it is evident that careful attention must be paid to each of the following points:—

- (a) The classification of the scholars, so that each may be placed where he can obtain most benefit.
- (b) The number and size of the classes.
- (c) The number and qualifications of the staff, and the distribution of its members so that each teacher may be placed where his efforts will be of most practical use.
- (d) The Registration of the attendance and progress of each scholar, and the proper mode of keeping all other school records.
- (e) The construction of the Curriculum and Time-table, so that the pupils may be provided with constant work of a profitable kind, and each subject dealt with at the most convenient time.
- (f) The planning of the schoolroom, in order to secure the most favourable external conditions for teaching.
- (g) The provision of suitable furniture, apparatus, and books.

It is proposed in the following chapters to deal with each of these points in detail.

Whether a school be large or small, it requires very little consideration to understand that an efficient system of organisation has an important bearing upon its proper management. In conducting the education of a single pupil, the teacher has only to do one thing at a time, and generally has but little difficulty in keeping him constantly engaged on subjects and modes of study exactly suited to his stage of advancement. But in conducting a school containing many children who differ both in age and attainments, the instruction of several classes must be carried on simultaneously; and in order to do this successfully, constant and suitable employment must be provided for all, and the work and management of each class must be considered with reference to the others.

Organisation may be considered good when the pupils are properly distributed among the various classes, and the teachers are sufficient in number and duly qualified to undertake the special work prescribed for them in the scheme of instruction.

Advantages of Good Organisation.—The principal advantages arising from an efficient system of organisation may be thus briefly summarised:—

- (1) It enables the teacher to perform the maximum amount of work with the minimum expenditure of time and effort.
- (2) It furnishes the conditions necessary in order that the instruction may be most beneficial to the children.
- (3) It places each child in the most favourable circumstances for exertion.
- (4) It constitutes a basis for good discipline, because it puts the pupils under the most favourable conditions for good conduct by keeping them constantly employed, and thus removing temptations which arise from inattention and idleness.
- (5) From these considerations it follows that the physical and mental strain upon the teacher is considerably diminished.

To sum up, good organisation is known by its completeness, smoothness, and regularity of working, and by the high quality of the results obtained under its influence, so that the true aims of school-life are thereby completely fulfilled.

Aims of School Life.—These have been admirably stated by the Board of Education as follows:—

The purpose of the Public Elementary School is to form and strengthen the character and to develop the intelligence of the children entrusted to it, and to make the best use of the school years available, in assisting both girls and boys, according to their different needs, to fit themselves, practically as well as intellectually, for the work of life.

With this purpose in view it will be the aim of the School to train the children carefully in habits of observation and clear reasoning, so that they may gain an intelligent acquaintance with some of the facts and laws of nature; to arouse in them a living interest in the ideals and achievements of mankind, and to bring them to some familiarity with the literature and history of their own country; to give them some power over language as an instrument of thought and expression, and, while making them conscious of the limitations of their knowledge, to develop in them such a taste for good reading and thoughtful study as will enable them to increase that knowledge in after years by their own efforts.

The School must at the same time encourage to the utmost the children's natural activities of hand and eye by suitable forms of practical work and manual instruction; and afford them every opportunity for the healthy development of their bodies, not only by training them in appropriate physical exercises and encouraging them in organised games, but also by instructing them in the working of some of the simpler laws of health.

It will be an important though subsidiary object of the School to discover individual children who show promise of exceptional capacity, and to develop their special gifts, (so far as this can be done without sacrificing the interests of the majority of the children), so that they may be qualified to pass at the proper age into Secondary Schools, and be able to derive the maximum of benefit from the education there offered them.

And, though their opportunities are but brief, the teachers can yet do much to lay the foundations of conduct. They can endeavour, by example and influence, aided by the sense of discipline which should pervade the School, to implant in the children habits of industry, self-control, and courageous perseverance in the face of difficulties; they can teach them to reverence what is noble, to be ready for self-sacrifice, and to strive their utmost after purity and truth; they can foster a strong respect for duty, and that consideration and respect for others which must be the foundation of unselfishness and the true basis of all good manners; while the corporate life of the School, especially in the playground, should develop that instinct for fair play and for loyalty to one another which is the germ of a wider sense of honour in later life.

In all these endeavours the School should enlist, as far as possible, the interest and co-operation of the parents and the home, in a united effort to enable the children not merely to reach their full development as individuals, but also to become upright and useful members of the community in which they live, and worthy sons and daughters of the country to which they belong.

EXAMINATION QUESTIONS.

1. What is meant by a good system of organisation? Give particulars.
2. State the chief characteristics by which you would be guided in deciding whether a school was well or badly organised.
3. Enumerate the advantages (*a*) to teachers, and (*b*) to children, which arise from an efficient system of organisation in a school.
4. If you were called upon to *organise* an entirely new school, to what considerations would you devote most attention? Give reasons for your answer.
5. Briefly summarise what you consider to be the chief objects of school life, and state how you would seek to attain them.

CHAPTER II.

CLASSIFICATION.

Classification is the arrangement of children into groups for purposes of collective instruction.

Each of these groups is termed a *Class*; subdivisions of classes are sometimes called *Drafts*; while two or three classes grouped together form a *Section*.

The main principle underlying any good system of classification in a school is *similarity of attainment*. The more nearly the children in a class are on the same intellectual level, the more readily can the instruction be adapted to their requirements, while at the same time the teacher can more completely utilise the forces of sympathy, emulation, and competition among them. Hence, the two essential conditions to be fulfilled in a good system of classification, are :—

- (1) That the pupils shall be near enough in attainments to work well together, and to profit by collective instruction.
- (2) That there shall be a sufficient number of pupils in the class to secure real emulation and mental stimulus.

The classification of children for instruction should not be based on a precise separation according to age; but those who, at the close of the course of instruction for the year, will not have completed their seventh year should generally be regarded as "infants." Others should generally be regarded as "younger scholars" until the close of the year of instruction in which they complete their eleventh year, and afterwards should generally be regarded as "older scholars."

Good classification economises time and teaching power, enables the teacher to keep all employed during every lesson, encourages healthy emulation, and materially aids discipline.

Systems of Classification.—The adoption of various bases of classification has given rise to different systems. These may be described under four heads—the *Multiple or Manifold*, the *Single*, the *Dual*, and the *Threefold Systems*.

(a) **The Multiple or Manifold System** utilises each subject as a separate basis.

A perfect system of classification would place each child in that class in every subject for which he is best fitted to make progress.

But children vary so widely in both natural abilities and attainments, that in order to meet the needs of each individual, a re-arrangement of classes would be required for every subject; *e.g.*, a good reader or writer may be weak in arithmetic; a child fairly strong in arithmetic may show but little ability in drawing or grammar, and so on. But while this may seem advisable from a theoretical standpoint, for obvious reasons it is practically impossible; scholars would occupy several different classes during each meeting of the school; much time would be wasted by each re-arrangement; noise and confusion would be almost inevitable; the number of classes and therefore the number of teachers needed would be considerably increased, and *synchronous* teaching would be necessitated, that is, the same subject would have to be taught throughout the school at the same time. Hence the plan is now rarely attempted in its entirety, though some of its benefits are secured by subdividing or re-arranging classes into various divisions during the same lesson, the whole class still remaining under the same teacher.

(b) **The Single System.**—The difficulty and inconvenience of a manifold basis have led many teachers to adopt a single system of classification, in which the children are classified according to *average ability* in all subjects, thus emphasising the true purpose of elementary teaching, which should be to advance the pupil equally in several branches of knowledge, rather than to foster a special talent for any single subject. The old “standard” system, rigidly followed in schools before freedom of classification was allowed by the Code, was mainly based on average ability, and with slight modifications the plan is still largely used. Sometimes, however, instead of taking average ability in all or in the more important subjects, a single subject now forms the basis; in such cases Reading will generally be found the most convenient basis for classifying junior scholars, though older scholars may be more fairly classified according to ability in Arithmetic. This latter subject is frequently taken as the basis for the entire school.

The *advantages* of the single system are:—

- (1) Simplicity of working.
- (2) Prevention of one-sided development.
- (3) All school subjects receive their due amount of attention from all the children.
- (4) The example of the more advanced pupils serves as a powerful stimulus to the rest.
- (5) Considerable aid is given to discipline.

The *disadvantages* of the system arise chiefly from the inequality of progress, especially in arithmetic, made by different children, so that:—

- (1) Naturally clever children lose time ;
- (2) Dull children are in danger of neglect, and
- (3) Children of average ability generally maintain their average place.

If the teacher devotes adequate attention to the dull scholars, the sharper members of the class are making very little real progress, and from this it follows that the advantages arising from competition and emulation are greatly diminished; while if he devotes too much attention to the sharper scholars, the dullards may make no progress whatever.

In order to make the system work well and to minimise its disadvantages, some modifications are generally adopted. For such subjects as Reading and Arithmetic the class may often be subdivided into drafts according to the degree of proficiency of various pupils, while other lessons may be treated collectively.

(c) **A Dual or Twofold System** based on Reading and Arithmetic jointly has often been found to work well, and is really a modified form of the system just described. Here the children are classified during one part of the day for Reading, and during another for Arithmetic. Such subjects as Spelling, Writing, Geography, History, or Grammar, would go with Reading; while Algebra, Mensuration, or Euclid (where taken as "special" or "class" subjects), and Mental Arithmetic, would accompany Arithmetic. Drawing, Manual Instruction, Cookery, or Needlework may be taken on either basis, or separate arrangements can be made for these subjects.

(d) **A Threefold System** based on Reading, Writing, and Arithmetic has also been used with excellent results, and practically no inconvenience. Spelling, Geography, History, and Grammar are here taken on the Reading classification; Arithmetic is taught simultaneously in all the classes, the re-arrangement of the pupils being effected when they assemble after play-time, and continuing till the close of the morning session. For Writing, Drawing, Needlework, etc., a similar re-arrangement follows the afternoon play-time, and continues for the rest of the session.

Classification in Infant Schools.—As a general rule, it is found that uniformity of ability in very young children corresponds roughly with age; though intelligence and attainment should be the

chief factors in determining the class in which a child must be placed, rather than a rigid classification according to age. The best basis is Reading, attainment in which is found in most cases to fairly agree with the age classification.

In large infant schools, even when the children are fairly grouped according to equality of attainment, it will be found advisable to subdivide the classes for certain lessons in order that the teacher may be able to devote individual attention to the scholars. Lessons in Singing, Recitation, Scripture, Common Information, and in some of the Kindergarten exercises may be conveniently given to large groups on a gallery, and Drill is generally best taught collectively; but the earliest lessons in Writing, Drawing, Reading, Needlework, and in some varied occupations, such as bead-threading, mat-weaving, clay-modelling, etc., cannot be made of real benefit without much supervision and individual assistance, and for these subjects small classes are therefore essential to successful teaching.

Backward Older Scholars cannot be considered suitable pupils in an infant school merely on account of ignorance; for though the methods of teaching older scholars whose early education has been neglected are similar to those adopted for infants, yet the discipline and associations of the infant school are unsuitable for them. Older boys and girls require longer lessons and stricter control than are necessary in the case of infants; hence though no rigid rule as to age can be laid down, especially in the case of delicate or afflicted children, it may be safely decided that backward scholars of advanced age are likely to make more progress in knowledge, to feel less discouragement, and to form better habits, when it is possible to make a special class for them in a school for older scholars than in an infant school.

In this connection the following extracts from Circular 395, issued to H.M. Inspectors for guidance in dealing with very backward children in schools for older scholars, may be found useful:—

"In a considerable number of the larger schools for boys and girls there are found groups of children, some of whom are nearly ten years of age, who at the time of their admission were almost wholly ignorant and quite without school habits.

"These classes of children cannot generally be taught with ordinary scholars capable of passing through the First Standard in the course of a year, except at the cost of very great anxiety on the part of the teachers and some strain upon the school organisation: whenever this is attempted, educational progress is imperfect and slow; and not seldom the habit of truancy is the result.

"Separate organisation, therefore, is required for their instruction and training; the same organisation, however, will probably not be suited to all schools."

Managers should therefore adopt, according to circumstances, one of the three following plans *in all cases in which it is thought that the number of these very backward children is insufficient to justify the employment of an additional teacher in their own school* :—

- (a) The establishment of a separate preparatory mixed class of boys and girls in a classroom of its own ;—this class should be, if possible, connected with the girls' department, and should be in the hands of a teacher specially skilled in training older infants, and she should be authorised to exclude all such boys as she finds beyond her power of control.
- (b) The infant mistress may be made responsible for the instruction and training of these children in her school, the right being reserved to her to refuse any boys whom she may deem unsuitable companions for her infants. These children should, if possible, be formed into a special class of the infant school, and should in no case be drafted into either of the lowest two classes.
- (c) In a small number of schools the re-organisation of the staff of boys' and girls' departments, coupled with the re-classification of the children, might enable the managers to devote the entire service of one teacher to such a class.

Unless one of the above suggested plans, or some plan equally efficient for the instruction of very backward scholars, is adopted, the organisation of the school must be considered defective, and there is likely to be a reduction in the amount of the Annual Grant.

Collective Instruction.—Two or more classes may often be conveniently grouped for certain lessons, thus economising teaching power and setting some members of the staff free for preparation or correction of other lessons. In an infant school these collective lessons are generally best given on a gallery ; in a school for older scholars they should be given in one of the larger classrooms, or in the main schoolroom. The lessons which lend themselves most readily to collective teaching in infant departments have already been mentioned ; in upper departments the following may often be thus treated :—

- (1) *Class Subjects.*—For such subjects as Geography, History, Elementary Science, Domestic Economy, or Grammar, two or three classes may readily be combined. In many schools it is found advantageous for the highest classes to follow the same syllabus in these and kindred subjects.

- (2) *Singing*.—The course of study recommended by the Board of Education is based on the assumption that collective instruction will be given; Grade I. being recommended as suitable for infants; Grade II. for the two lower standards in upper departments; Grade III. for Standards III. and IV., and Grade IV. for Standards V. and upwards. Part-songs for older scholars necessitate the grouping of several classes.
- (3) *Object or Information Lessons*.—For these, all the classes in a school may conveniently be grouped into two or three divisions.
- (4) *Recitation*.—With a good pattern and careful explanation two classes may often receive instruction as readily as one.
- (5) *Scripture Lessons*.—Moral and Biblical truths acquire additional weight and impressiveness when given by the head or some other adult teacher, and for this purpose several classes are best combined.
- (6) *Some Elementary Subjects*, such as Writing and Mental Arithmetic, may occasionally be treated collectively. Special collective lessons in Writing, or the Principles of Arithmetic, etc., given at regular intervals by the Head Teacher, or under his direct supervision, will generally have a marked effect, though plenty of individual teaching is also necessary.
- (7) *Drill*.—Musical drill is conveniently taken by several classes massed together in a central hall, though the space available for movement must here be taken into consideration. Military Drill and Physical Exercises are suited to collective teaching after the preliminary lessons have been understood; but the instruction should at first be given to small classes, in order to secure correct position and movement on the part of every pupil.

In all collective lessons, however, care must be taken that the size of the class is not excessive, that the children are not uncomfortably crowded together, and that the lesson is not unduly prolonged. No teacher can give effective collective instruction to more than sixty or seventy scholars, even for a single special lesson, and unless due precautions are taken for securing interest and attention, the collective lessons may be productive of more harm than good.

Classification of New Scholars in Upper Departments.—On receiving a new scholar into school, the class in which he must be placed is best decided by means of a short test examination in Reading, Writing, and Arithmetic; to a subordinate extent, age and stature may also be taken into account.

In many districts it is customary to furnish transfer notes from one school to another, stating the standard of proficiency and general character of the child wishing to be transferred. This plan obviates much difficulty on the part of the teacher receiving the new scholar, and deserves official recognition by the Board of Education. Where it is not in use, however, the following are the main points to be taken into account:—

- (1) If possible, obtain direct information from parents as to the child's age and attainments, last school attended, etc.
- (2) The age and general appearance of the scholar will roughly decide whether he should be placed in a junior or senior class. If young, he should be placed as low as possible; and if old, as high as possible, so far as is consistent with his educational advantage. It is often discouraging to place older children, even if dull, with those who are much younger than themselves; and such a practice, moreover, may have an injurious effect on the discipline of the class.
- (3) For younger pupils Reading or Writing may be taken as a fair index of progress; for older scholars, Arithmetic is the surest test; the classification in doubtful cases being modified by special attainment in other subjects.
- (4) A few oral questions to test general intelligence will often be useful for approximately deciding the class.
- (5) In very doubtful cases (such as children whose preparatory education has been received in private schools) it is wiser to put the new comer too low at first, rather than too high. If the entrance test has under-estimated his abilities, it is both easy and pleasant to promote him afterwards; but for obvious reasons, the opposite course may cause discouragement to the child, and dissatisfaction to his parents, thereby possibly injuring the reputation of the school.

General Difficulties in Classification.—A consideration of the various systems of classification, and the particular dangers which they seem to remove, will show that the most prominent general difficulties are:—

- (1) Wide differences in the ability of children to grasp what is taught, and consequent varying rates of progress.
- (2) Marked dissimilarity of mental power with respect to different subjects.
- (3) Differences of constitution, and the varied effects of study upon the health of children.
- (4) The varied periods at which the faculties come into play with sufficient strength to be of use in acquirement; some children who seem dull up to a certain age, afterwards shoot rapidly forward; while the later school-life of some precocious children does not always fulfil their early promise.
- (5) Differences in home advantages, and the interest of parents in school work.

SPECIAL DIFFICULTIES OF CLASSIFICATION AND HOW TO OVERCOME THEM.

1. **In Small Schools.**—Where average attendance ranges from 50 to 100 or slightly over, the difficulties of classification are greatly intensified, because, owing to the varied ages and attainments of the scholars, the number of classes will exceed the number of the staff; while infants are often included in addition to older scholars.

Unless very few in number, the infants should have a classroom to themselves; and in any case means must be taken to prevent them from interfering with the instruction of the older scholars. An infant class containing less than 30 children may be entrusted to a senior girl pupil-teacher; if the average attendance is between 30 and 50 it may be in charge of "a woman over eighteen years of age approved by the Inspector," now officially termed a "Supplementary Teacher;" if more than 50, it must have a certificated teacher of its own. No grant will be paid in respect of any period longer than three months (inclusive of the ordinary school holidays), during which the Infants' Division has been without such a teacher. Where the class is very small, the instruction will be mainly collective, though in writing, drawing, needlework, reading, and appropriate occupations, some individual attention will be possible on account of the fewness of the scholars. Where the class is fairly large the children must be grouped for some subjects according to their difference of ability, and the mistress will need the help of a girl pupil teacher or monitress, when the class is sub-divided. During collective lessons in the infant class the pupil teacher will

assist the master in teaching a division of the older pupils. When this method of procedure is necessary owing to the smallness of the staff, the time-table must be drawn up to facilitate the arrangement, so that whenever possible collective lessons will be given to the infants while the older scholars are receiving special class-teaching.

The staff of the upper department will depend on the number of children. If the master has the help of an assistant and one or more pupil teachers, the difficulty of classification is to some extent removed, as he can subdivide the school into as many groups as he has teachers. Where he works single-handed, or with the aid of only one pupil teacher, it is practically impossible for the scholars to occupy a different class for every subject. Here advantage must be taken of the freedom of classification allowed by the Code, and the scholars must be grouped for various subjects whenever convenient. A broad classification of the school into an upper and a lower division, based on ability in Reading and Arithmetic combined, is generally found to be the most workable arrangement; though modifications must be introduced according to circumstances. Singing, Object, and Copy-book lessons may be taught to all the scholars collectively; Needlework will be taken by the girls under the direction of the Infant Mistress, whose place with the infants will for the time be taken by the pupil teacher or monitress. Meanwhile the boys will receive instruction from the master in Drawing, the lower group working on slates or paper according to proficiency, while the same, or slightly more difficult exercises will be done on paper by the upper group. Lessons on the Principles of Arithmetic may be given to the upper division by the master, while the junior scholars are occupied with a Transcription exercise, in charge of a monitor or pupil teacher; the subsequent practice in Arithmetic of the upper division being supervised by the pupil teacher while the master examines the work of the lower group, or delivers a Geography or Grammar lesson to this group. Silent Reading, Composition, Transcription of difficult words from the reading books, or some similar exercise may be taken by the older pupils, while the master devotes attention to the Principles of Arithmetic in the lower division. In Arithmetic the unequal progress of the scholars in each group adds to the teacher's difficulty, though in some measure this may be met by further subdivision of the groups; but the collective instruction of a group must as far as possible be adapted to the benefit of all the children in it, the

instruction of the lower scholars sometimes serving as a recapitulatory exercise for the more advanced, while work which is fully up to the standard of the latter may serve to give useful preliminary notions to the former.

By methods such as these the master, even with a minimum amount of assistance, is able to distribute his efforts where they are of most advantage, and at the same time to keep all his pupils well employed; but while the difficulties may thus in some degree be lessened theoretically, it is evident that in actual practice they can never be entirely removed; and in any case the strain on the teacher is likely to be severe. The arrangement of the time-table so that the lessons of one group do not interfere with those of another is of fundamental importance for securing orderly and steady work; for example, a class engaged in reading will not disturb an adjoining group having a transcription lesson; but reading lessons by two classes in close proximity at the same time will result in mutual interference. Where a classroom is available, in addition to that occupied by the infants, the difficulties of organisation are considerably diminished.

2. In Large Schools.—Where a school is organised so that each class occupies a separate room, and is under the care of an adult teacher, full advantage may be taken of freedom of classification. The same subject may be taught simultaneously throughout the school, and scholars may be drafted to those classes best suited to their respective requirements. These frequent changes, however, are sometimes likely to have a weakening effect on the discipline; while the removal of the abler members of a class generally serves to lessen the feelings of emulation and competition among the rest which their presence afforded. Children who manifest special aptitude in certain subjects for which they are regularly promoted are likely to attach less importance to others in which they are defective; but such promotion is scarcely suited to elementary schools, since it has a tendency to encourage one-sided education at a period when uniform all-round ability should be rightly aimed at. Specialisation should not come until some time after the elementary course has been completed.

In many large schools, owing to insufficient classroom accommodation, several classes are taught in the main schoolroom. Under these circumstances arrangements should be made in order to prevent the lessons of one class interfering with those of another.

It would be difficult, for example, to concentrate the attention of one class taking a Grammar lesson in close proximity to another having an interesting Experimental Science or Object lesson; and it would be almost impossible to successfully conduct an Oral lesson to a class in the neighbourhood of another taking simultaneous reading. The separation of classes by means of curtains, or better still by movable partitions, is of great assistance, but lessons which necessitate a fair amount of noise, such as simultaneous reading and recitation, or singing, are best given in a separate classroom, the change of position being generally effected after play-time.

Re-adjustment and Promotion.—With regular attendance and intelligent teaching, most of the children in a class should make fairly even progress, and a general re-adjustment may take place at the end of each school year.

Under the present regulations of the Board of Education promotion depends solely upon the teacher's opinion of each scholar's progress, and the best method of gauging this is to hold an examination of the elementary subjects shortly before the Easter, Summer, and Christmas holidays. The papers worked at these tests should be kept for reference, and promotion generally made on the average progress shown, with due regard to *regularity of attendance*.

In some large schools it has been found advantageous to organise each class into an upper and a lower section, the former consisting of children who are able to work more or less by themselves, subject to the teacher's supervision, while the latter is made up of those who are not naturally so quick of intelligence, and therefore require most things to be explained to them, thus necessitating very gentle progress. By this plan the more intelligent pupils do not feel that they are being kept back by their less highly endowed schoolfellows, while the latter are enabled to move forward at their natural pace. Throughout the year, promotions are made from the lower to the upper section, the test depending mainly upon the desire of individual pupils to work independently, and their evidence of self-reliance in study. The teacher is thus enabled to give help and attention just where these are most needed, while at the same time a spirit of self-help and originality is inculcated among the more intelligent pupils. Promotion to the next higher class is made almost exclusively from the pupils in the upper section, so that all are stimulated to aspire to it.

No scholar should be promoted until he is ready for promotion; it is unfair to the boy to give him advanced work before he is fully prepared for it, and equally unfair to the teacher in whose class he is placed. The boy becomes discouraged because he is discredited in the eyes of his class-mates through inability to do work which is beyond his powers, while the repetition of lessons demanded by his dulness is a hindrance to the progress of the other members of the class.

On the other hand, it is scarcely fair to keep a scholar back after he is ready for promotion, otherwise bad effects may result to the class as a whole, as well as to the scholar himself; the motives to exertion being weakened in both cases. Through lack of change in his work the scholar may develop indolent habits, interfere with his slower companions, retrograde himself, and even form a dislike for school altogether, owing to the feeling of injustice at his non-promotion. The shortness of school life for the majority of children necessitates that promotion should be as rapid as is consistent with thorough instruction, hence examination for promotion may be *terminal* instead of simply annual. Spasmodic removal of individual scholars to higher classes, however, should be avoided, as this prevents the promoted children from receiving the benefits of a full course of instruction.

Scholars who are punctual and regular should be periodically promoted if possible, and it should always be made clear to both parents and children that gross unpunctuality and irregular attendance are inevitable obstacles to progress. By this means the teacher may utilise the privilege of promotion from class to class as a powerful aid for securing regular and punctual attendance.

Obstacles to Progress.—These obstacles may have a two-fold origin: they may be due either to the teacher or to the child himself.

I. Those due to the Teacher are:—

- (a) *Faulty Classification.*—A child may have been promoted with the rest of the class at the end of the school year, before he was fully prepared for more advanced work; or he may have grown careless and indifferent through non-promotion. Careful consideration and thorough knowledge of each pupil's abilities are needed here.

- (b) *Imperfect Methods of Teaching*.—Thorough preparation of lessons and the cultivation of good methods of teaching constitute the remedy. Likely difficulties must be anticipated by the teacher, and cleared up at each stage of his instruction before proceeding further.
- (c) *Harsh Discipline*.—The capacity for learning in many children is often weakened by the common infliction of punishment for intellectual faults, and a dislike for study is thereby engendered. Patience and sympathy are essential to successful teaching.

II. Those due to the Children are:—

- (a) *Irregular Attendance*.—This is the greatest obstacle to progress with which teachers have to contend. The causes are various, but the chief are the indifference of parents, and the indifference of some School Authorities and Magistrates in enforcing the attendance regulations of the district. So far as the teacher is concerned, the evil may best be met by making the school and its surroundings as attractive as possible, by enlisting parental interest and co-operation whenever practicable, and by various auxiliary means, such as the personal interest of the staff in the school cricket, football, or swimming club; a monthly or quarterly honours' list of punctual and regular scholars prominently exhibited in the school, or published in the School Magazine, etc. In rural schools, where the children are drawn from a wide area, absolutely regular attendance is almost impossible to obtain in stormy weather.
- (b) *Poverty*.—In many schools this is happily unknown; in others, unfortunately, it is only too prevalent. Children who are under-fed and ill-clad cannot be expected to make the same intellectual progress as those in better circumstances. In many instances this obstacle has been met by charitable agencies, conducted by teachers or Educational Authorities, for the distribution of free dinners and serviceable clothing; the necessary funds being provided by voluntary subscriptions, school concerts, etc.
- (c) *Mental Dulness*.—This is sometimes inherited from parents, in which case additional patience and clearness in teaching are necessary. Occasionally, timidity or nervousness, due to harsh discipline, is mistaken by the teacher for dulness;

in other instances, apparent stupidity may be due to faulty classification of the scholar; lack of energy, or insufficient preparation on the part of the teacher; or monotonous and uninteresting lessons, owing to want of suitable illustrations and experiments. The remedy is to remove the causes as far as possible, in these latter cases.

Advantages of Free Classification.

1. To the Child:—

- (a) He is put in the class for which he is best fitted according to his attainments in each subject.
- (b) Being in the most suitable class for profiting by the instruction, his efforts receive greater encouragement; and his progress is therefore better ensured than it otherwise would be.

2. To the Teacher:—

- (a) Time and effort are economised; all the children in the class are so taught that the action of each may tend to the benefit of all.
- (b) All the scholars being on a fairly general level of attainment, discipline is aided by motives of emulation, competition, sympathy, and desire for praise.
- (c) The teacher is enabled to devote attention to the progress of the class as a whole, instead of wasting his energies on hopeless individual cases, as might happen if the scholars were classified according to some rigid system, *e.g.*, age.

3. To the School:—

- (a) The progress of every scholar is fairly ensured.
- (b) The character and reputation of the school are thus greatly benefited.

Evils of Imperfect Classification.—These are due to a disregard of those conditions which render the system of classification adopted suitable to the circumstances of the school, resulting in:—

- (a) Waste of time and teaching power;
- (b) Lack of suitable and constant employment to all the members of the class, owing to inequality of attainment; hence
- (c) Idleness and disorder are likely to ensue, resulting in
- (d) Weakness or harshness of discipline;
- (e) The influence of emulation is greatly lessened;
- (f) Dissatisfaction among parents may be produced, and the reputation of the school may be thereby damaged.

Practical Considerations which have an Important Bearing on Classification.

1. With respect to Individual Scholars:—

- (a) *Attainments* constitute the first consideration. The last class occupied is a fair means of gauging a child's ability, but a brief examination in the elementary subjects is a safer guide, most weight being paid to attainment in Arithmetic, Writing, and Reading.
- (b) *Age* is not always a reliable indication of mental ability, but should not be entirely unnoticed. Roughly, there should be about as many classes in a school as there are years in the school-life of the scholars; but experience proves that the power to apply the mind for purposes of learning commences in different children at very different ages. Nevertheless, for the sake of encouragement and self-respect, dull children of advanced age should be placed in as high a class as is practicable for progress.
- (c) *Bodily Condition* has an important bearing on mental effort. A severe intellectual strain must not be imposed upon children labouring under physical weakness; in these cases it is wiser to place such children in a class somewhat below their normal requirements. No child should be unduly forced to develop *mental* at the expense of *bodily* power.

2. With respect to the School as a whole:—

- (a) *The Planning of the School* has an important bearing on the arrangement of the classes. If each class occupies a separate room and is taught by a competent teacher, a manifold or multiple system of classification may be adopted without much difficulty, care being taken to minimise the dangers mentioned on pp. 13 and 14. Such a system of classification, in which each child is placed for every subject in the class best suited to his stage of progress in that subject, necessitates the teaching of the same subject throughout the school at the same time, in which case the organisation of the school is said to be *synchronous*.

Where classroom accommodation is limited, several classes must be taught together in one room, and the time-table must then be so adjusted that the lesson of one class does not interfere with that of an adjoining class.

- (b) *The number and qualifications of the teachers* will chiefly determine the number and size of the classes. The school should be divided into as many classes as can be efficiently supervised by the staff, but no more; and no class should be larger or require a wider range of instruction than the teacher in charge of it can well manage, though, whenever possible, it must be large enough to afford scope for the exercise of emulation and competition. No teacher, however skilful, can reasonably be expected to teach with thorough efficiency any class in which the number of pupils greatly exceeds the maximum fixed by the Code, and for all practical purposes, slightly more than half the Code maximum for teachers of the various grades will be found sufficient. In the opinion of the Rev. T. W. Sharpe, formerly H.M. Senior Chief Inspector of Schools, "the number of children in a class ought never to exceed forty, and in the highest class of an Upper Department, as well as in the lowest class of an Infants' School, there should not be more than twenty-five pupils to one teacher."

With respect to the size of classes, the following statistics may be found useful. In the Welsh Intermediate schools there is an average of one teacher to seventeen pupils, while in most English and Scottish Secondary schools the classes contain from twenty to twenty-five pupils. In Denmark the classes show an average of thirty pupils, and in Holland and Sweden the number is limited to forty. In France and Switzerland no class must exceed fifty pupils. In Saxony lower classes are limited to forty children, and in Italy to fifty-five; higher classes in Saxony must not contain more than thirty, and in Italy more than twenty-five scholars. Under the Education Department of New Zealand the classes are limited to thirty-two pupils; while in the State of Washington, U.S.A., and in Cape Colony, thirty is considered to be a reasonable number.

- (c) *The subjects of instruction* will also have an important influence upon the size of the classes. A simultaneous reading lesson, a singing lesson, or an object lesson may be given to a large class, or even to several classes combined; individual practice in reading, or a drawing lesson, is best taken with a small group; and a similar rule holds for all other subjects of the curriculum.

EXAMINATION QUESTIONS.

1. If you had to classify a new elementary school, what would be your test subject and why? What other considerations should influence you besides the actual attainments of the children?

2. What advantage, if any, is there in making a separate classification for general subjects, and what are the reasons in favour of the ordinary practice of keeping the same scholars together for the whole of their instruction?

3. What are the advantages of a separate classification in Arithmetic? Why is it often advisable to re-classify for Drawing or Singing?

4. On receiving new scholars into the school, what is the best way of deciding in what class to place them? Give reasons for your answer.

5. Under what circumstances is it advisable to teach all the classes in a school the same subjects at the same time?

6. What *general* difficulties are met with in classifying children? What are the *special* difficulties of classification experienced (a) in a large school; and (b) in a small school? How would you seek to minimise them in each case?

7. Say how you would treat these cases:—

(a) That of a scholar very backward in Arithmetic, but equal to his fellows in other subjects.

(b) That of a scholar not capable of being taught with profit, even in Standard I.

8. What were the chief hindrances in the way of progress of the children you used to teach, and how did you attempt to remove them?

9. What bad effects are produced by imperfect classification, both upon the more and less advanced members of a class? State the advantages of a free system of classification.

10. Show that for some lessons infant classes should be smaller in number than classes composed of older children, and that for other lessons one or more classes may be grouped.

11. How should promotion be made? State fully the bad effects that are produced by retaining a clever child in one class for a year without due promotion.

12. Discuss the principles and considerations which you would take into account in regulating the promotion of (a) a pupil who is quick all round; (b) one who is quick in a special subject only; (c) one who is slow all round.

13. What considerations should decide where a boy ought to sit in a class? What facts should determine the size of a class?

14. Do you consider it advisable for a child eight years of age who has never been to school before to be placed in the Infant School? If not, where should he be placed? Give reasons for your answer.

15. What is meant by a collective lesson? Enumerate the subjects of school instruction which are best treated collectively. What faults should be guarded against in giving collective lessons?

16. State what you consider to be some of the most important practical considerations which influence classification.

CHAPTER III.

THE TEACHING STAFF.

Recognised Teachers.—The persons recognised by the Board of Education as members of a School Staff are:—(a) Certificated Teachers; (b) Provisionally Certificated Teachers; (c) Uncertificated Teachers; (d) Supplementary Teachers; (e) Pupil Teachers; and the "Staff" of any school or department consists of all the teachers whose employment in it is officially sanctioned.

Lay persons only are recognised as teachers in elementary day schools receiving grants from the Board of Education, though clergymen may be employed and recognised as members of the staff in evening schools.

No person who is a member of, or is employed otherwise than in teaching by a Local Education Authority can be recognised as a member of the staff of any school within the area of such Authority.

Determination of Staff.—In fixing the Staff required for any school, the average attendance, age, and sex of the scholars must be taken into consideration. It is obvious that the larger the number of children in any school, the greater will be the number of teachers required; it is also evident that men are best adapted for teaching boys, except perhaps in the lowest classes; and women are best fitted for teaching infants and girls; while in a mixed school teachers of both sexes must be employed.

(a) With respect to average attendance, the Board of Education, in estimating the minimum staff required, consider:—

The Head Teacher sufficient for an average attendance of	...	...	...	...	50
Each Certificated Assistant Teacher	...	...	...	...	60
Each Uncertificated or Provisionally Certificated Teacher	...	...	...	...	45
Each Supplementary Teacher	...	...	...	...	80
Each Pupil Teacher	...	...	...	...	80

But it should not be understood that a school staffed according to the foregoing scale is necessarily efficient. In every case the sufficiency of the staff must be considered with special reference to local circumstances, and in no case should the number of children *habitually present at any one time under the instruction of any teacher or teachers exceed by more than 15 per cent. the number*

for which such teacher or teachers is or, are considered to be sufficient.

The annexed table will serve as an approximate guide to the distribution of the various grades of teachers according to the number of children in average attendance at any school. The numbers in the *left hand* column give the approximate average attendance, while those in the *right hand* column give the maximum number of children for which each staff is considered sufficient by the Board of Education. For the larger numbers alternative schemes are given, since by comparison with the figures quoted above, it is evident that the distribution of the staff may be slightly varied in each instance.

Maximum Average Attendance.	Head Teacher.	Certificated Assistant Teacher.	Uncertificated or Provisionally Certificated Teacher.	Supplementary Teacher.	Pupil Teacher.	Maximum Number for each Staff.
	50	60	45	30	30	
60	1	—	—	1	—	80
100	1	—	1	1	—	125
150 {	a	1	2	1	—	170
	b	1	—	1	1	170
200 {	a	1	2	—	1	230
	b	1	1	1	2	245
250 {	a	—	3	1	2	275
	b	1	2	1	2	290
300 {	a	1	4	—	2	350
	b	1	2	1	2	350
350 {	a	2	3	1	2	395
	b	2	4	—	2	410

Arrangements necessary for schools with an average attendance larger than 350 can readily be worked out in the manner indicated above.

It is evident that if thoroughly efficient work is to be done in any school, the foregoing numbers of scholars for the adequate supervision of whom the various teachers are stated to be sufficient must be considerably reduced. Not one of the above arrangements of staff can be considered really adequate to produce the highest results in the school to which it is assigned. The Code requirements are not put forward as indicating a *completely efficient staff*,

but simply for the purpose of showing the *minimum number* of teachers who must be employed in a school without reduction of grant for insufficient teaching power; and it is only by allowing a fairly wide margin above the minimum that the staff can be maintained efficiently. It will be seen that if pupil teachers are not counted in the arrangements indicated, the staff in nearly every case falls below the bare minimum prescribed by the Code; yet many Education Authorities entirely refrain from counting the pupil teachers in their schools when estimating the staff to be employed, because the services of these teachers will only be available during part of the time that the school is open, if they receive instruction at a recognised centre. Others also arrange the staff without reckoning the number for which the Head Teacher may be considered responsible; and in this way the sufficiency of the staff is kept well above the prescribed minimum.

(b) In addition to considerations respecting average attendance, the special circumstances of the school, and the efficiency of its teachers, must be taken into account.

In the case of a parish or school district in which the population within a radius of two miles from the school is less than 500, the following scale of staffing is required by the Board of Education in place of that given on page 22:—

The Head Teacher is to be considered sufficient for an					
average attendance of ...	...	...	...	...	40
Each Certificated Assistant Teacher	...	...	...	...	40
Each Uncertificated or Provisionally	Certificated				
Teacher	...	...	...	...	30
Each Supplementary Teacher	...	...	...	...	20
Each Pupil Teacher	...	...	...	...	20

But the teaching staff of a school, even when *numerically* sufficient, may be *practically* inadequate. The age and sex of the scholars, their mental capacity, their health and condition in life, and the planning and equipment of the school buildings, must all receive attention. The teachers should be adapted to the age and sex of their pupils, and should possess adequate knowledge of the subjects they intend to teach; thus, all the teachers of a school for infants or girls should be women; and in mixed schools the presence of at least one adult woman on the staff is indispensable on account of the practical instruction of the girls in such subjects as Needlework, Household Management, Cookery, etc. Some teachers, again,

are better fitted for the management and instruction of infants or lower standard children than for older scholars, and *vice versa*. Even in rural schools, where the number of scholars is small, adequate assistance should be provided if the instruction is to be thoroughly efficient and systematic. No teacher can effectively instruct more than two groups of scholars at the same time, when each group contains children of various degrees of proficiency.

The *sufficiency* and *suitability* of the staff constitute one of the most important points which must be taken into account by H.M. Inspector when recommending the annual grant payable to the managers of any school, and inadequacy will involve a considerable reduction in the amount. It may be laid down as a safe rule that except in the very smallest schools the staff should contain at least two adult teachers.

Head Teachers.—All Head Teachers of elementary day schools with an average attendance exceeding 50 children, must be certificated by the Board of Education. Schools with an average attendance of less than 50 may be conducted by Provisionally Certificated Teachers, *i.e.*, Pupil Teachers or Supplementary Teachers who have obtained a place in the first-class at the King's Scholarship Examination, and who are specially recommended by H.M. Inspector, with respect to their practical skill as teachers; but such persons cease to be recognised as such after the end of the school year in which they complete the twenty-sixth year of their age, or after the removal of the school in which they are employed from the Annual Grant List on account of inefficiency.

The responsibility of the head teacher includes everything connected with the working of the school. His actual duties must necessarily vary somewhat according to the size of his school; broadly speaking, however, they will be comprised under four heads: (1) Organisation; (2) Teaching; (3) Examination; (4) General Superintendence.

1. Organisation.—The head teacher must classify the children so as to place them in the groups best adapted to their stage of progress; appoint the other members of his staff to those classes where they will be of most service; select and distribute the subjects of the curriculum in the most effective way; arrange the time-table; and see that the various school records are regularly and properly kept. He is solely answerable for all entries in the Admission Register and Log-Book; and he is also held responsible

for the proper keeping of the Daily Attendance Registers, though the marking of these may be entrusted to pupil teachers who have completed their first year of apprenticeship.

2. Teaching.—In small schools the staff is very often limited, and much of the actual work of instruction must necessarily be done by the head teacher.

In moderate-sized schools the master has not only to superintend the work of his subordinates and give occasional model lessons to various classes, but must often assume the responsibility of teaching a special class. Generally speaking, this should be the highest section of the school, as his influence will here be most needed in maintaining discipline, while his experience and superior ability as a teacher should be of the greatest value in training the children to acquire habits of correct thought and reasoning; but if a well-qualified and trustworthy assistant is available, to whom this division of the school may be entrusted under the head teacher's direction, the latter, assisted by a pupil teacher, may advantageously take charge of the lowest section, as the employment of good methods is here of the utmost importance in order to establish a sound basis for future work.

In large schools most of the head teacher's time will be taken up with the supervision and direction of his subordinates, leaving little or no opportunity for carrying on the entire instruction of a class; but in all cases he should devote as much of his time to actual teaching as is consistent with the efficient discharge of his numerous other duties.

The training of the pupil teachers in the art of teaching should always be considered one of the chief duties of every head teacher. It is part of the Inspector's duty to report each year whether he considers that this obligation has been adequately fulfilled, and no pupil teacher may be employed in any school which is not approved as suitable for his professional training.

Special lessons to serve as patterns for the pupil teachers and junior assistants should be given by the head teacher at regular intervals; more frequently he may take portions of lessons for the purpose of showing the best methods of dealing with some special point.

The superintendence of pupil teachers is considered by the Board of Education to include the supervision of them with respect to their training in the art of teaching, and also with regard to the

instruction given to them as a condition of their engagement, though the wide extension of the Centre System of instruction has in very many cases relieved head teachers from the latter responsibility.

This right of superintendence is granted to all persons who have passed the Certificate Examination, or have fulfilled such other conditions as the Board of Education may consider equivalent. Registers must be kept showing the actual time spent by each pupil teacher under the head teacher's supervision, together with full records of the nature of the training and of the student's progress in teaching and class-management.

3. Examination.—Systematic work according to a definite syllabus can best be ensured by the examination of the classes at regular intervals by the Head Teacher. Such tests will generally serve to reveal weaknesses of method, or any points which may have been overlooked by the class teacher. The form of examination adopted may be varied from time to time, but a careful record of the results should always be kept. A complete individual examination held at least once a year is useful for deciding the promotion of the scholars, as well as for arousing emulation, and encouraging them to work for a definite object.

Copy-books, note-books, etc., should all be examined by the head teacher at intervals, sometimes in conjunction with the class teacher, and sometimes independently.

4. General Superintendence.—General superintendence is a term of wide meaning, and practically includes all duties connected with the management of the school. Many of these are inseparable from the office of head teacher, and cannot strictly be delegated to subordinates. Attention to absentees and late scholars, the daily review of the children with reference to cleanliness and neatness, and all communications with parents as to the conduct and progress of the scholars, should proceed directly from the principal. He should also hold himself responsible for all infliction of corporal punishment whenever such punishment is necessary, and every case should be entered by him in the Punishment Register; though with the consent of the managers the right to inflict a reasonable amount of corporal punishment may be delegated to any certificated teacher on the staff.

To sum up, in addition to adequate intellectual, moral, and physical qualifications, a thoroughly competent head teacher must possess a good measure of tact and strong common-sense, coupled with good business qualities and ability to use them; his influence should be

felt throughout the school, and he should be ready to devote his energies in whatever direction they are most needed for its successful management.

Certificated Assistant Teachers may conveniently be termed "Class Masters" or "Class Mistresses." All teachers who have passed the final examination for Teachers are known as "Certificated Teachers," and there is only one class of certificate. Generally speaking, the Certificated Assistants in any school possess qualifications equal to those of the head teacher, whom it is their duty to support in every particular relating to its successful management. They are generally placed in charge of a division of the school, and often have associated with them one or more of the younger members of the staff, whom they should direct and train in the art of teaching. In a large school the head teacher must act in great measure through his duly qualified subordinates; just as he is responsible for the progress and discipline of the whole school, so also are they responsible for these same features with respect to the division of which they have charge, and in the absence of the head teacher through illness or other causes they are often required to assume his functions.

Staff Conferences.—Whether a school be large or small, efficient co-operation of the members of the staff is one of the most important essentials for its successful management, and therefore in all schools where several adult teachers are employed, periodical Staff Conferences will be found helpful for the purpose of comparing and discussing methods of teaching, and various other important matters affecting the management of the various classes. By this means uniformity of method can be more readily obtained, and improvements in organisation or changes in classification suggested. The discussion should be a perfectly open one; even the youngest members of the staff may sometimes be encouraged to take part in it, and the head teacher should give his most careful consideration to all difficulties or grievances which are made known. The feelings engendered by such staff conferences will be those of comradeship and mutual support. Every member of the staff will feel that he has a share in the direct management of school affairs, and will be encouraged to put forth his best efforts; while much time spent by the head teacher in watching and scrutinising his colleagues will be saved.

Copies of Reports.—All certificated teachers who have been employed in a school for not less than six months in any school year, are entitled to claim from the managers, free of charge, a certified copy of the Inspector's Annual Report for that year, after it has been entered in the log-book. They may also claim a copy of every successive report while they are on the staff of the school.

Provisionally Certificated Teachers are persons who have obtained special recommendation from H.M. Inspector on the ground of practical skill in teaching, and have fulfilled one of the following conditions:—

- (a) Satisfactorily completed an engagement as a pupil teacher in a public elementary school, and obtained a First Class at the King's Scholarship Examination; or
- (b) Served for not less than two years as a Supplementary Teacher (formerly known as a teacher under Article 68) in a public elementary school, and passed the King's Scholarship Examination in the First Class; or
- (c) Served for at least one year as an Uncertificated Teacher in a public elementary school.
- (d) Passed (in 1901 or previously) the First Year Certificate Examination, which is now no longer held.

Teachers who are provisionally certificated may take charge of schools in which the average attendance does not exceed 50 scholars, but they cease to be recognised as such after the end of the school year in which they complete the twenty-sixth year of their age, or earlier, if the school of which they have charge is removed from the Annual Grant List on account of inefficiency. No form of certificate is issued to a Provisionally Certificated Teacher.

Uncertificated Teachers.—Candidates for recognition as Uncertificated Teachers must, except in the case of those who have passed the King's Scholarship Examination, produce a satisfactory medical certificate in a form approved by the Board of Education, and must possess one of the following qualifications. They must either—

- (1) have passed the King's Scholarship Examination; or
- (2) have passed the corresponding examination held by the Scotch Education Department; or
- (3) be Graduates, or persons qualified by examination to become Graduates in Arts or Science of any University in the British Empire recognised for this purpose; or

- (4) be certificated in the first class by the Irish Commissioners of National Education, without having been trained in a Training College; or be certificated in the second class, or recognised in the first or second grade, by the same Commissioners; or pass the revised examination after having been trained in a Training College, subject in each case to a satisfactory report from the Commissioners; or
- (5) hold the Army Acting Schoolmaster's Certificate, be recommended by the War Office, and be favourably reported on by an Inspector; or
- (6) have passed some other qualifying examination approved by the Board of Education for this purpose, and be not less than eighteen years of age.

Persons recognised as Assistant Teachers under Articles 50 or 51 of previous Codes may also be recognised as Uncertificated Teachers.

Supplementary Teachers.—In Mixed and Girls' schools, and in Infants' schools or divisions, suitable women not under eighteen years of age may be recognised as Supplementary Teachers, provided that they are specially approved by the Inspector for capacity in teaching, and that the circumstances of the case render their employment necessary. Such teachers may be employed in the general instruction of the scholars, and in teaching needlework, housewifery, etc., and where the arrangements are suitable they may, with the approval of the Inspector, be employed as teachers of the lower classes in Boys' schools. For convenience of reference, these additional teachers were formerly designated "*Article 68 Teachers*," from the section of the Code which originally referred to them; but this term is now obsolete. Each is considered sufficient for a class with an average attendance of not more than thirty scholars; but not more than one Supplementary Teacher will, as a rule, be recognised on the staff of any Department, and in no case may more than two be employed. No definite standard is fixed with respect to the educational qualifications of Supplementary Teachers, but the Board of Education may require, as a condition of their continued recognition as members of the school staff, that suitable arrangements are made for their training.

Pupil Teachers are boys and girls who are receiving (*a*) training in the art of teaching in a Public Elementary School; and (*b*) instruction approved by the Board of Education which will fit them educationally for their work as teachers.

Both sides of their training demand attention. The Managers are bound to see that the Pupil Teachers are properly instructed

during their apprenticeship, and if the Board of Education considers that this duty is neglected, the recognition of Pupil Teachers as members of a school staff under the same Managers may be refused. The Head Teacher may also lose the right to superintend them, if H.M. Inspector is satisfied that they are not properly trained in teaching and class-management.

In order to be engaged as pupil teachers, candidates must produce certificates of health and character; they must be presented to H.M. Inspector for approval; and must pass the special candidates' examination of the Board of Education held in the spring of each year, or some other examination recognised as its equivalent.

Pupil teachers must not be less than sixteen years of age at the commencement of their apprenticeship, the length of which will ordinarily be two years; but in rural schools candidates between fifteen and sixteen years of age may, with the special consent of the Inspector, be admitted to an apprenticeship of three years. Other candidates may be admitted for an engagement of one year, provided that:—

- (a) They have shown evidence of special educational attainments to the satisfaction of the Board of Education; and
- (b) The end of the engagement falls beyond the completion of the Pupil Teacher's eighteenth year.

The apprenticeship of Pupil Teachers must date from August 1st, or, with the special consent of the Board of Education, from January 1st. No Pupil Teacher may be employed in any school which is not approved by H.M. Inspector as suitable for his or her training, and not more than four Pupil Teachers will, as a rule, be recognised in any department of a school, though a larger number may be permitted when the Inspector is satisfied that the school is specially adapted for the purposes of their training. This limitation in the number of pupil teachers does not apply to those whose apprenticeship has been extended by deferring the King's Scholarship Examination for a year

As a general rule, Pupil Teachers must be of the same sex as the Head Teacher of the school in which they are employed. Girls are not, as a rule, recognised as pupil teachers in a boys' school, nor boys in a girls' or infants' school; but in the upper departments of mixed schools pupil teachers of both sexes may be employed.

The Selection of Pupil Teachers.—This demands the greatest care and discrimination. It must be borne in mind that the candidates are young and lacking in experience, and therefore *possibilities* and *promise* of future usefulness must be looked for, rather than actual skill, so far as ability in teaching is concerned; though considerable success as a scholar serves as a good indication of intellectual attainment, and affords a good foundation for future study.

The following are the chief qualities which should fairly be expected in every likely candidate:—

- (a) *Physical*: Strong constitution, good health and spirits, and freedom from bodily deformity.
- (b) *Mental*: A fair degree of general intelligence, together with good powers of memory and reasoning. Considerable fondness for study is also essential.
- (c) *Moral*: Honesty, earnestness, steadiness of purpose, obedience and willingness; to these may be added habits of neatness, and courtesy of manner.
- (d) *Teaching Promise*: Fair aptitude for instructing and governing, with a liking for the work; sympathy with children, and cheerfulness of disposition.
- (e) *Good home influences*, with ample facilities for study.

Where pupil teachers attend Centre classes, it is advisable for the Head Teacher to have an equal number of seniors and juniors in such years of apprenticeship that both are never attending the Centre together. This will ensure that some pupil teachers are always present in school.

The Training of Pupil Teachers has a two-fold aspect, *viz.*, *professional* and *intellectual*.

(a) **Professional**: In order that they may develop good teaching and disciplinary powers, pupil teachers must be shown what to do and the proper method of doing it; they must be taught how to *prepare* lessons, and how to *give* them, while at the same time securing the attention and maintaining good order among the children entrusted to their charge.

Frequent opportunities should be afforded them of seeing pattern lessons delivered by skilled and experienced teachers; and whenever possible these should be followed by a discussion with the teacher concerning the methods employed, and the various points brought out by questioning, illustration, use of the blackboard, etc. Abundant and well-supervised practice in class-management should also be provided for the pupil teachers, and their efforts privately criticised in a kindly and suggestive spirit.

Criticism Lessons.—These should be given by all pupil teachers, at least once per week throughout their apprenticeship, and during the first year should be chiefly based on subjects that have been dealt with in pattern lessons previously observed. It is a serious mistake to allow any pupil teacher to give a Criticism Lesson without assistance beforehand. It is better to prevent errors being committed, and harm thereby done to the class, by providing help during the preparation of the lesson. Some preliminary advice should therefore be furnished by the head teacher, or by an experienced assistant, with respect to the various teaching devices to be employed and likely faults to be avoided. A book in which the notes of such criticism lessons are preserved and dated should serve as a useful record of the pupil teacher's progress in the art of teaching.

It is often found useful to arrange that senior pupil teachers may listen to the lessons of the junior teachers, afterwards joining the adult teachers in criticising the lessons and giving reasons for their comments.

After a number of criticism lessons on the same subject have been given by a pupil teacher, he may advantageously be set to teach that subject continuously to a class.

In no case should a pupil teacher have charge of a class without direct and constant supervision of his methods. In the first year of his apprenticeship he should be chiefly required to assist an older teacher, and should not be expected to take the entire care and responsibility of any class; but gradually, as he gains teaching experience and ability, he may be entrusted with more freedom of management. It is important, however, that he shall not contract any bad faults in teaching which will afterwards be difficult to eradicate, and therefore supervision must still be exercised for the purpose of pointing out weaknesses of method and suggesting improvements.

The acquirement of good disciplinary powers is an important part of the pupil teacher's professional training, and is best secured by carefully observing the manner and bearing of an experienced teacher towards his scholars. Ability to secure cheerful and willing obedience depends almost entirely on force of character coupled with an accurate knowledge of, and sympathy with, the ways of children; but as the pupil teacher's character is not fully developed he cannot be expected to possess these qualities to any considerable extent. Hence he should never have sole management of the discipline of any class, or he will be tempted to resort to force when other means would be more wisely employed.

The classes best suited to the early stages of teaching experience are those in the middle portion of the school; children in the lowest classes require more patience and more skilful methods of instruction than can reasonably be expected from a young pupil teacher; while the highest classes from which he was withdrawn but a short time ago, are beyond his management, especially on the disciplinary side.

Pupil teachers must, as a rule, be employed and receive training in the art of teaching at a Public Elementary School for not less than 100 nor more than 200 meetings of the school during each year of apprenticeship; or if the total number of meetings exceeds 400, not more than half this total must be spent in school work during any one year. Where it is found impossible, however, to adopt these limitations of attendance for practical school work, the pupil teachers must serve in school for not more than 5 hours on any day, nor for more than 20 hours in the same week.

(b) **The Intellectual Training** of pupil teachers must be based upon a course of general instruction approved by the Board of Education, and leading up to the King's Scholarship Examination, or some other examination which is recognised as its equivalent. Where possible, this instruction must be given in a Pupil Teacher Centre approved by the Board of Education, and in all cases the curriculum must include Reading and Recitation (with Voice Production), Drawing, Natural Science, Music, Physical Exercises, and in the case of girls, Needlework.

The introduction of the Centre system of instruction has had a tendency to render the studies of pupil teachers more systematic and methodical; and where such classes are available, head teachers are to a considerable extent relieved from the responsibility of instructing their pupil teachers, while the latter may be expected to reap considerable benefit from the additional intellectual advantages and the extra opportunities for study thus afforded them, as well as from the spirit of emulation naturally arising when a number of pupil teachers are taught together. Some precaution is necessary, however, to ensure that in his effort to achieve specially good results in study, the pupil teacher does not lose interest in the equally important practical side of his training.

Where it is shown to the satisfaction of the Board of Education that Centre instruction is not available, such other arrangements as appear to be the best possible under the circumstances will be accepted. Registers showing the time spent by each pupil teacher under instruction, and records of its nature, must be kept, and the

work must be of such a character as to lead up to the King's Scholarship Examination, or to some other examination accepted as its equivalent in qualifying for admission to a Training College. No arrangements, however, will be accepted as satisfactory, unless they provide for at least 300 hours annually to be spent by each pupil teacher under instruction or in private study, and the time thus allotted must as a rule be after 7.30 a.m. and before 6 p.m.

Where the Centre classes are not available, it necessarily follows that the instruction of pupil teachers must devolve mainly upon the Head Teacher.

SUGGESTED TIME-TABLE OF STUDY FOR A PUPIL TEACHER.

The following time-table, which allows three hours' study each evening except Saturday, will serve to indicate the method by which the foregoing suggestions may be carried out. According to the student's preference, an hour in the early morning may be substituted for one of the evening hours of study.

<i>Monday</i>	6—7 p.m.	Arithmetic.
"	7—8 "	History.
"	8—9 "	English Literature.
<i>Tuesday</i>	6—7 "	Algebra.
"	7—8 "	Physiography.
"	8—9 "	Geography.
<i>Wednesday</i>	6—7 "	Euclid.
"	7—8 "	English Grammar and Composition.
"	8—9 "	School Method.
<i>Thursday</i>	6—7 "	Arithmetic.
"	7—8 "	Drawing.
"	8—9 "	History.
<i>Friday</i>	6—7 "	Algebra.
"	7—8 "	Geography.
"	8—9 "	Music or Reading.
<i>Saturday</i>	9—10 a.m.	Euclid.
"	10—11 "	English (or other language).
"	11—12 "	Physiography (or other science).
"	8—9 p.m.	Reading and Recitation.

Handwriting and Spelling should receive attention for 10 or 15 minutes on alternate days. Girls may substitute Needlework for the whole or part of the time given by boys to Euclid and Algebra.

Whenever possible, a Pupil Teacher should be granted some portion of time during each school-meeting for the pursuit of his own studies. Pupil Teachers who are unable to receive the advantage of Centre instruction must not serve in school during more than twenty hours per week, nor more than five hours in any one day, Sunday being expressly excluded from the engagement. This rule refers to the actual work of teaching. Schools in which the daily session lasts for 3 hours in the morning, and $2\frac{1}{2}$ hours in the afternoon, meet for $27\frac{1}{2}$ hours per week altogether. Therefore, at least $7\frac{1}{2}$ hours weekly during school-time, should be granted to every Pupil Teacher, for purposes of private study; it should thus be possible to give all Pupil Teachers one day per week in turn, or two half-days, or considerable portions of several days, which they can use for private study.

ADDITIONAL TEACHERS.

(a) **Temporary Monitors** are recognised as members of the school staff when vacancies occur in the office of any teacher (except the Head Teacher) during the course of a school year, and are duly reported to the Board of Education. Each monitor is accepted as equivalent to a pupil teacher (*i.e.*, counting for an average attendance of thirty scholars), on condition that the vacancies are filled up not later than the first day of the next school year by the appointment of duly qualified teachers. The attendances of a scholar while *habitually* employed as a monitor cannot be registered for grant-earning purposes, but the attendances of the same scholar when not thus employed may be counted.

Leaving out of consideration these officially recognised staff-monitors, who are now employed only to a very limited extent, most class teachers find it an advantage to make use of monitors chosen periodically from the class.

To the scholars themselves such an appointment is useful in fostering a spirit of co-operation; creating a deeper interest in the work of the class; maintaining a spirit of emulation—provided the office is held for a definite period as a reward for good work and conduct; and generally, in increasing their respect for the teacher.

The duties of class-monitors should mainly consist of:—

- (1) Preparation, distribution, and collection of apparatus and books.
- (2) The keeping of the stock-account of class material.
- (3) The registering of marks, and the performance of various other miscellaneous services.

The advantages to the class teacher are obvious; his time is saved; he is popularised with his pupils when the monitors are selected with tact and discretion, and he is freed from the necessity of leaving his class during the course of any lesson.

(b) **Organising Teachers** are certificated teachers or other persons approved by the Board of Education, who either inspect schools and advise managers and teachers, or instruct or examine teachers in any special subjects or educational methods, or instruct or examine candidates for the office of pupil teacher. The term thus includes instructors in Pupil Teacher Centres. Such persons may be paid out of the school funds, *but should not be reckoned as constituting a part of the school staff when assessed according to average attendance.* The same rule applies to peripatetic or visiting teachers of manual instruction, drill, shorthand, drawing, singing, laundry-work, cookery, or any other special subject, who are engaged by the managers of several schools jointly.

The following are the chief advantages of employing such peripatetic teachers:—

- (1) Being specialists, they are likely to be better qualified to deal with their subject than the ordinary class teacher.
- (2) They help to economise the class teacher's time and effort, and are thus of material assistance to him.
- (3) Considerable economy in the cost of apparatus is effected. Instead of each school possessing a set of its own, the same appliances may be used at several schools during the same day, being conveyed from school to school by the visiting teacher.

It is always advisable for the class teacher to be present during all lessons given by visiting instructors, in order to assist in maintaining discipline if necessary, and also for the purpose of taking careful notes of the chief points in the lesson, so that it may be revised several times before the next visit.

Distribution of Staff.—The best arrangement of his staff among the classes is an important consideration with respect to successful teaching in a school, and involves the exercise of considerable care and foresight on the part of the Head Teacher.

Each member of the staff must be appointed to that class for which he is best fitted on the ground of knowledge, teaching ability, and power of maintaining discipline.

Considerable ability is undoubtedly required in order to teach and govern any class in the school thoroughly well; but those midway

between the upper and lower divisions (commonly termed Standards II. and III.) generally demand the least skill. Hence, in the absence of adult assistants for these classes, they may be entrusted to senior pupil teachers, subject to the head teacher's supervision.

The two most important classes are the highest and the lowest; and therefore, other things being equal, these should be in charge of the most experienced members of the staff.

The upper classes demand most skill in management, on account of the amount of knowledge and the careful logical training necessary, together with the judicious disciplinary treatment involved. Almost equal in importance, however, is the lowest division of the school, where abundant sympathy, patience, and experience are needed in fostering good habits of work, and in laying a firm foundation which will ensure sound progress in the later stages. It is a great mistake to commit this division to the youngest or weakest teacher of the school, on the false assumption that the work of the lowest class is the easiest.

The circumstances of schools vary so greatly that no fixed rules for distributing the teachers among the various classes can be laid down. It has been already stated that in small schools the head teacher's time is necessarily taken up with the actual work of teaching. In large schools, however, where this can be avoided, he should not undertake the sole responsibility of a class; but he may more profitably devote his attention to careful supervision and testing of the work of the various classes, and any time that he can spare for teaching should be given to those subjects in which any defect or weakness is shown, or to model lessons for the training of the younger members of the staff.

The class teachers in a school may be distributed in one of three ways:—

- (a) Each teacher may go through the same course for several years in succession.
- (b) Each may advance with his class when it is promoted annually.
- (c) Special subjects may be taught to all the classes in the school by the same teacher.

One of the first two methods is generally adopted in elementary schools; though in the case of such subjects as singing, drawing, manual training, needlework, cookery, or drill, a teacher with special ability in these directions may teach the subject throughout the school. Each plan has its advantages and disadvantages.

(a) In favour of the first it may be stated that many teachers are specially adapted to the work of a particular class,—for example, one who has achieved great success with younger scholars might not be suited to the work of upper classes, and *vice versa*; the teacher who has covered the same ground during successive years is fairly certain to have a thorough knowledge of the difficulties of the work, and the best methods to be employed in overcoming them; while the scholars gain by being brought under the influence of a different teacher every year. On the other hand, it may be urged that although an expert in the work of his own class, the teacher's experience will be limited to a small portion of the school curriculum. Variety and versatility are essential to successful teaching, but constantly dealing with the same kind of work is liable to render his efforts mechanical and monotonous, as well as to make him lose sympathy with the work of the school as a whole.

(b) The second plan enables the teacher to have a far better knowledge of the capacities and character of the children in his class than would be possible under any other; while the yearly advance in the subjects tends to widen his teaching experience, as well as to produce greater interest and variety in his work. The disadvantage of the system is that the child is kept mainly under the influence of the same teacher during his entire school-life; and however skilful a teacher may be, his methods are liable to become stereotyped unless great care is exercised. Generally speaking, this plan cannot therefore be said to conduce so fully to the intellectual development of the scholars as the first.

An occasional change is good for both teachers and taught; and therefore in many well-organised schools a combination of these two plans is followed. The school is divided into two sections, Junior and Senior, each section consisting of three or four classes. The Junior section contains the classes commonly known as Standards I. to III., and the Senior section contains the remainder. A teacher advances from the lowest to the highest class in either section, and then begins again, the cycle thus lasting three or four years. By this means most of the drawbacks of each separate plan are removed, and their individual benefits are secured; while further advantages may be obtained by transferring teachers, where practicable, from one section to the other.

(c) With the possible exceptions of such subjects as Drawing, Singing, Manual Training, and Drill, the employment of special teachers for the same subject throughout the school is scarcely

necessary in elementary teaching. The weight of experience is strongly in favour of the responsible class teacher. The chief advantage claimed for the engagement of specialists is that when a teacher's attention is confined to one or two particular subjects, he is able to deal with them more skilfully, because he is doing the work for which he is presumably best qualified; his preparation is likely to be more perfect, and in such a case he brings into play a greater depth of knowledge and a more thoughtful method of instruction, which has a stronger influence in arousing mental effort and enthusiasm, and maintaining interest in his pupils, than would otherwise be the case. In reply it has been urged that the specialist's attention is directed too exclusively to mere *instruction*, and too little to the need of knowing his pupils' dispositions and peculiarities; so that the *development of character* under such a teacher's influence is largely discounted. A teacher who has a class continuously under his control feels more keenly the responsibility of training his pupils in good habits and principles, than the specialist whose influence is scattered over several classes. By confining his attention within narrow limits, he is liable to view his subject in a false light, and to magnify its importance to the detriment of other subjects of the curriculum, because he feels little or no interest in the children beyond their success in that particular subject for which he is responsible; while instead of a connected whole, knowledge acquired by children from separate teachers will be more or less a collection of isolated systems, because under such conditions correlation is practically impossible. From the disciplinary side also, with very few exceptions, the responsible class teacher has a much stronger influence than the specialist.

To sum up, it may be safely concluded that for securing a good class tone, developing moral habits and principles, and due attention to all-round knowledge, a responsible class teacher is preferable; though for specialisation in any particular subject, special teachers may in some cases be found useful for elder scholars.

In many boys' schools lady teachers are employed to take charge of the lower classes, for which, generally speaking, they are better adapted than men. It is only fair, however, that when employed instead of men, their salary should be equal to that of the men they replace.

Though not absolutely forbidding the employment of lady teachers in boys' schools, the Board of Education does not seem disposed to look with favour on the arrangement, for obvious reasons; such

teachers will probably look forward to future employment in Girls' or Mixed Schools, but by teaching in a Boys' School their chances of such promotion are lessened, while at the same time they are prevented from acquiring experience in teaching such subjects as Needlework and Domestic Economy, which are necessary when teaching girls.

Settlement of Staff.—The plan to be followed in the distribution of the teachers must be decided upon at the beginning of the school year, and as soon as the Inspector's annual report is received, a list of the school staff must be entered in the log-book and signed by the correspondent of the managers. This entry will show the constitution of the school staff at the beginning of the school year. All changes in the permanent staff must be immediately entered in the log-book and notified to the Board of Education, and the greatest care must be taken not to permit the staff at any time to fall below the minimum prescribed by the Code.

Vacancies in the school staff should be immediately reported to the Board of Education. If duly qualified teachers cannot then be at once obtained to supply the vacancies, temporary monitors will be recognised on the staff under the conditions already stated (page 36). On the appointment of a new teacher, his date of birth, the name of the school in which he was last employed, and the school (if any) in which he served as a pupil teacher, should be notified to the Board of Education.

A school previously in receipt of annual grants may continue to receive them *for not more than three months* of the time (exclusive of ordinary holidays) occupied by any interval or intervals in any school year, between the *leaving* of one and the *coming* of another duly qualified teacher, on condition that the school is kept open and the registers are duly marked during the interval.

EXAMINATION QUESTIONS.

1. How would you most effectually secure compliance with the regulations issued by the Board of Education for the systematic training of Pupil Teachers? Draw up a scheme for a week's work in school for a Pupil Teacher in his second year.

2. State how far it is possible to take advantage of freedom of classification in a mixed school of 120 children, taught by the minimum staff allowed by the Code. State the staff you would prefer under these conditions, and the basis of classification you would adopt; and then

show how you would distribute the *staff*, the *classes*, and the *subjects of instruction* for a single day's lessons.

3. Discuss the various advantages and disadvantages of employing special teachers for any subject in an elementary school.

4. Explain the principles on which, if you were a head teacher with an assistant and two pupil teachers, you would distribute the duties among the members of the staff.

5. What part of the preparation for each lesson have you been accustomed to get the children of your class, or monitors chosen from them, to do for you? Why is it useful to get all possible work so done?

6. Which should come first in the training of a pupil teacher, model or criticism lessons? What should be the subjects for the earlier lessons?

7. If you were head teacher of a school, would you prefer to keep each teacher to the same standard every year, or would you allow the teachers to advance with their classes? Give reasons for your answer in each case.

8. A school has an average attendance of 250 scholars. State the staff which you would consider necessary for its efficient management, and show how you would distribute the various teachers among the classes.

9. What assistance does a head teacher ordinarily require in conducting a mixed school of 80 boys and girls, and 55 infants? State in detail the duties which should be assigned to each, and the part of the work which should be reserved for the head teacher.

10. Discuss the relative merits of making assistants responsible teachers of classes, or teachers of the subjects they know best.

11. State how you would organise the work of a mixed school of 200 children, of whom 50 were under seven years of age. What staff would you require, and how would you distribute the work among them?

12. Give what you consider a suitable time-table for the studies and employments of a pupil teacher in his or her second year, and state on what principles such a time-table should be drawn up.

13. What provision should be made in a school in which two pupil teachers are employed in the second and first years of apprenticeship respectively, for training them in the art of teaching?

14. How can the duties of a head master towards the lower classes of the school be best discharged, if he retains the teaching of the highest class for his own special work?

15. If you were head of a school with a staff of one certificated assistant, two assistant teachers, and three pupil teachers, how would you divide the duty between them, and what share of the teaching would you yourself undertake? What should be the average number of scholars in such a school?

CHAPTER IV.

THE KEEPING OF SCHOOL RECORDS.

Importance.—Carefully kept school records are indispensable to successful school work.

- (1) They summarise the history of the school; thus furnishing data from which its condition at various periods can be correctly estimated and compared.
- (2) They supply facts and statistics required by the Board of Education as necessary conditions for the payment of the annual grants.
- (3) They enable the teacher to readily obtain accurate knowledge respecting the attendance and progress of each child, for his own information, or for that of parents and managers, or for the purpose of assisting Local Authorities in the administration of the various Acts regulating the labour of children.
- (4) They furnish reliable statistics which may sometimes be of valuable assistance in educational legislature.

In the keeping of all school records the chief point to be kept in view is a *minimum of clerical work* combined with perfect accuracy and completeness of detail. If the records are to be of real service, they must be thoroughly reliable, and no important details must be omitted; at the same time they should not take up so much of the teacher's attention as to hamper him in the actual work of teaching.

Accuracy is the first essential. Records which are irregularly or carelessly kept can scarcely fail to be unreliable in some particular or other, and are worse than useless. *Regularity* of entry has an important bearing on accuracy.

Attendance Registers must be marked every time that the school meets, the hour of marking being indicated on the timetable. Entries in the Admission Register must be made immediately on the admission of every new scholar. All other records should, whenever practicable, be made complete by the end of each week at the latest.

Completeness of detail is secured by keeping separate records for each department of school work. Provision should at least be made for supplying all the data required by the Board of Education.

Unnecessary clerical work is avoided by convenience of arrangement, so as to facilitate ready reference; for instance, some Attendance Registers are so devised that the names, ages and admission numbers of the scholars need only be written out once per year, while space is provided for addresses and other useful data in close proximity to the names. In a large school the saving of time and work thus secured is considerable. The alphabetical index to the Admission Register, when carefully arranged, will also save much needless effort.

In some schools the Head Teachers have such a large amount of clerical work in providing returns and data for the Officers of the Education Authorities that they have comparatively little time left for actual supervision.

Inasmuch as the payment of the government grant to any Elementary School is based on the average attendance of the scholars, perfect accuracy of registration and careful preservation of registers are absolutely indispensable. The grant may be reduced or entirely withheld for faults of registration.

The Records which must be kept in every Elementary School are:—

- (1) The Register of Admission, Progress, and Withdrawal.
- (2) The Daily Attendance Registers.
- (3) A Register of Summaries.
- (4) The Log Book or School Diary.
- (5) The Register of Punishments.
- (6) A book for recording Minutes of Managers' Meetings.
- (7) A Portfolio to contain official letters.
- (8) The Record of Work already done, and the Syllabus of Work to be done in each class.
- (9) Class Records of the progress of the scholars.

To these are added in some schools:—

- (10) A Half-Time Register, if necessary.
- (11) The Transfer Book.
- (12) The Epidemic Register for Infectious Cases.
- (13) The Fee Book.
- (14) The Visitors' Book.

The following regulations of the Board of Education with respect to the proper mode of keeping School Records are extracted from Schedule IV. of the Revised Code of Regulations for Public Elementary Schools.

General Rules for the use of Registers.

1. The names of the school, of the department, and, in the case of attendance registers, of the class, must be distinctly written on the cover of each register and on the title page there must be the signature of the correspondent and the date on which it was issued to the teacher.

2. The pages of all registers must be numbered consecutively, no leaf must be inserted in or withdrawn from any register, and no blank spaces should be left between the entries.

3. Entries must be original and not copies, and must be made in ink without erasure or insertion.

If it is necessary to make any correction, this should be done in such a manner that the original entry and the alteration made are both clear on the face of the record.

4. Registers should be kept for ten years after they have been filled.

The Head Teacher of a school or department is held responsible for the proper keeping and preservation of the records of that school or department, and should not delegate to a subordinate any part of this work except the keeping of attendance registers.

Pupil teachers of the first year may not be employed in registration; other pupil teachers may register the attendances of their own classes.

Special Rules for Admission Register.

5. An entry should be made in the admission register for each scholar on his admission to the school. No name should be removed until the child is exempt from the legal obligation to attend school, unless it has been ascertained that he or she is dead, is attending another school, or has left the neighbourhood. If no information is obtainable the name may be removed after a continuous absence of four weeks.

6. Successive numbers must be allotted to the scholars on their admission so that each may have his own number, which he should retain throughout his career in the school. This number will then serve to identify him.

When any scholar whose name has been removed from the register is re-admitted a new entry must be made, but the scholar should resume his old number and cross reference should be made to the entries.

7. This register must show distinctly for each scholar who has actually been present in the school—

(a) His number on the register.

(b) The date of his admission (and re-admission)—day, month, and year.

(c) His name *in full*.

(d) The name and address of his parent or guardian.

(e) Whether exemption from religious instruction is claimed on his behalf.

(f) The exact date—day, month, and year of his birth.

(g) The last school he attended before entering this school. If this is his first school, the word "none" should be entered in this column.

(h) If he has left, the date of his last attendance at this school and the cause of his leaving.

8. This register should have an alphabetical index.

Rules as to the Provision of Attendance Registers.

9. In each school or department in which both infants and other scholars are taught there must be separate sets of attendance registers kept for each, and no attendances may be transferred from one to the other.

10. For each class in a school or department there should be a separate attendance register, containing the names of all children in the class, including half-timers, if any.

11. Each class containing scholars above and below the age of five years, and each class containing scholars above and below the age of twelve years, must have two registers, one for those above, the other for those below the respective ages.

The name of a scholar must be transferred from one of these to the other not later than the end of the week in which he attains his fifth or twelfth birthday, as the case may be.

Registers for Special Classes.

12. For any class in a subject for which a Special Grant is paid under the Code, or for any class in the ordinary subjects held in accordance with the time-table elsewhere than at the school, there must be a special register.

In these registers the dates of meetings and the times during which the scholar is under instruction at the meetings must be accurately shown.

Special Rules for Attendance Registers.

13. There must be columns for the admission numbers and names of the scholars, both of which must invariably be entered at the same time.

There must be a column for the attendances at each meeting in the school year. Each of these columns should be properly dated before any entry of attendance or absence is made in it. The columns must be grouped in weeks, and at the foot of each there must be spaces for entering the total number of children present, when the minimum time constituting an attendance begins, and the total number withdrawn before the time constituting an attendance is complete.

There must be spaces for recording the total attendances in the quarter made by each child.

14. If school fees are entered in the register, they should be kept quite separate from the entries of attendances; the best place will be the extreme left of the page before the names of the scholars.

15. The approved time-table must provide adequate time at each meeting of the school for marking the registers, and this time must end before the commencement of the minimum time constituting an attendance.

The marking of the registers for the afternoon meeting may not commence within an hour of the close of the morning meeting, except on occasions for which the special sanction of the Board has been given to a shorter interval. This proceeding is very undesirable, but special cases may occur, such as those of country schools in the North during the winter, where there is good reason for making the afternoon meeting of the school follow the morning meeting after a short interval.

16. During the time set apart for registration at every meeting of the school—

Every scholar whose name has been entered in and not removed from the admission register must be marked \ (present) or ○ (absent).

Just before the completion of the time set apart for registration the number of scholars marked present must be entered in the space provided, and to ensure accuracy a count of those actually present should be made before the number is recorded.

17. During the minimum time constituting an attendance—

The mark of presence of any scholar who leaves before completing an attendance must be cancelled at once by drawing a ring round it thus, ○.

But this need not be done in the case of a scholar leaving the school for instruction in a special class held outside the school, unless it is subsequently ascertained that such scholar has not completed the minimum time constituting an attendance.

Just before the completion of the minimum time—

The number of scholars whose marks of attendance have been cancelled must be entered in the space provided.

18. Any scholar marked absent at any meeting who is found—when the registers of a central class for cookery, drawing, science, etc., or the registers of attendance at museums or other approved places are examined—to have been present during the minimum time constituting an attendance at such class, or partly at such class and partly at the school, may have the letter C, D, S, M, A, etc., entered inside the mark of absence, thus ○ C ○ D ○ S ○ M ○ A. All attendances so registered should be added to the total attendances of each child at some time not later than the end of the school year.

19. When a child is prevented from attending the school by reason of a notice of a sanitary authority under *Article 56 of the Code, or any provision of an Act of Parliament, or is excluded under medical advice, his mark of absence should be entered thus, ○ E (epidemic sickness).

20. When the school does not meet on an occasion for which space is provided in the registers, this space must before the next meeting be cancelled by one or more lines being plainly drawn through it. The reason why the school did not meet should always appear in the log book. For longer periods "holiday" should be written across the column.

*Article 56 of the Code is as follows:—"Notice must be sent to the Inspector as soon as is possible in each case, of every date upon which the school will be closed or its ordinary work suspended, whether for the holidays or for any special occasion, and in the event of failure to give timely notice a deduction of £1 will be made from the Annual Grant unless the managers or the local authority acted without timely notice by reason of a sudden emergency. Unless it is possible to give at least seven days' clear notice of an intended closure, such notice should be given by telegram."

21. The attendance registers must be marked every time the school meets, however small the attendance, and the meeting must be counted in ascertaining the average attendance.

N.B.—In country districts, where the children have to come from some distance to attend school, a meeting of the school may occasionally be abandoned without previous notice on days when, owing to inclement weather, the attendance is so small as seriously to interfere with the ordinary working of the school.

In such a case, the children who reach the school so wet that sitting in school for the usual school hours is likely to be injurious to their health, should be sent home at once. The children not likely to be injured by remaining for the usual school hours may be admitted and allowed to receive instruction without the registers being marked or the meeting reckoned. Whenever this is done, full particulars of the circumstances must be entered in the log book, and a record should be kept of the numbers sent home and retained in school respectively.

Rules for the use of the Half-time Register.

22. A separate register must be provided for half-time scholars. The name of no scholar should be entered in this unless he has obtained a labour certificate from the Local Authority of the district, and is actually employed in conformity therewith.

23. At the close of each week, the number of the two-hour attendances made by each of the half-time scholars during the week must be ascertained from the class registers, and posted in the half-time register.

24. At the end of the year a list must be drawn up and signed on behalf of the Local Authority, certifying (a) the number of two-hour attendances made by each half-time scholar, (b) the addition claimed on his behalf. This addition may not exceed—

- (i.) *One-half* of the two-hour attendances made by the scholar during the year, or during the portion of the year that has elapsed since the scholar became qualified as a half-timer; or
- (ii.) Such a number as when added to the number of his two-hour attendances will give a total equal to *three-fourths* of the number of meetings of the school during the year, or during the portion of the year that has elapsed since the scholar became qualified as a half-timer.†

† *e.g.*—Suppose a School to have met 420 times.—A half-timer, if quite regular throughout the year, will be present at 210 meetings, and the above rule in this case allows an addition of 105 to his two-hour attendances. If from any cause, such as illness or residence in the district for less than a year, his attendances fall short of 210, he may still be counted as a half-timer for the number of times he does attend. In such a case, if he attend, say 180 times, he may have an addition of 90 to his two-hour attendances. If, on the other hand, he has been out of work for any time, and therefore at school, he may have made more than 210 two-hour attendances. In respect of such extra attendances he has no claim to be treated as a half-timer. If he has attended (say) 260 times, he may be allowed an addition of 55 to make up 315, *i.e.*, three-fourths of 420.

Rules as to the Register of Summaries.

25. All entries in the register of summaries whether for a class or for the whole department must be given separately for scholars below the age of five years, for those above five and below twelve years, and for those above twelve years respectively.

26. At the close of each week or part of the week during which the school has been open, the following entries must be made in the register of summaries in respect of that period—

- (1) The number of meetings of each department.
- (2) The total attendances of each class.
- (3) The total attendances of each department; and
- (4) The average attendance of each department.

27. At the end of the school year the average attendance for the year should be ascertained for each school or department by dividing the total attendances made in that year by the number of meetings of the school or department.

The average attendance for scholars below five, between five and twelve, and above twelve, must be separately ascertained.

28. An entry must be made in the register of summaries of the classification of the children of each sex according to their ages on the last day of the school year.

Verification of the Registers.

29. The Managers are held responsible for the supervision and effective verification of the registration, and at the end of the school year are required to certify—

- (1) that the registers have been accurately kept in accordance with the rules of this Schedule; and
- (2) that the accuracy of the registers has been tested by the managers on several occasions, and the result recorded in the log book.

30. In order to be able to give this certificate Managers are expected to visit the school without notice, at least once in a quarter, to check the registration, at a time when the class registers ought to have been closed by an entry of the number of children present at the beginning of the minimum time constituting an attendance.

The Log Book or School Diary.

The Log Book should be stoutly bound and contain not less than 300 ruled pages. It must be kept by the Head Teacher, who should enter in it, from time to time, such events as the introduction of new books, apparatus, or courses of instruction, any plan of lessons approved by the Board, the visits of managers, absence, illness, or failure of duty on the part of any of the school staff, or any special circumstance affecting the school that may, for the sake of future reference or for any other reason, deserve to be recorded. No reflections or opinions of a general character are to be entered in the Log Book.

Entries in the Log Book should be made by the Head Teacher at the end of each school week, and at such other times as occasion may require. No entries should be made by other persons except by the Correspondent, by the Managers, who check the registers periodically, and by the Inspector.

The Log Book should contain an explanation of the reason for the closing of the school on all occasions on which it is closed. It should also contain an account of all important variations in the attendance, and all deviations from the ordinary routine of the school.

In addition to the foregoing official regulations respecting School Records, the following points should be noted :—

1. The Admission Register should be kept exclusively by the head teacher.

Time may be saved, and much needless trouble avoided, by the use of printed or cyclostyled forms containing spaces for all the details required upon admission; these should be filled up by the parents of new scholars, and kept by the teacher for future reference. Such forms are of special service at the opening of a new school, or at periods when a large influx of new scholars is likely to take place. These forms are now almost invariably used in evening schools. The information thus obtained should be at once entered in the Admission Register, and at the same time the name should be indexed, thus facilitating ready reference at any future time. The form may then be passed on to the class-teacher, who will enter name, age, address, admission number, etc., in the class register.

The names of any scholars who are known to have left during any week should be taken from the class registers at the same time as the weekly attendances. The date of the last attendance in each instance should be entered in the Admission Register, together with the cause of leaving, if known.

The columns for "Attendances made in the School" are not absolutely necessary, but will be found useful for recording yearly totals in schools where Labour Certificates are required.

The accompanying form of Admission Register shows all the data required for each scholar and the proper mode of making entries. *It is important to remember that these data should be entered immediately upon the admission of each scholar.*

2. Daily Attendance Registers.—It is preferable to enter the names in these registers in alphabetical order, with surnames first. Each day's attendance should be *dated*, and the *year* should be entered at the head of every page of the register.

In many schools where prizes and promotion are made dependent to some extent on punctuality as well as regularity, the registers are marked twice during each half-day,—first in red ink for early attendance, and afterwards in black for late marks and absence. The counting up of the weekly totals may be facilitated if the strokes for morning and afternoon attendance are made to slope in opposite directions. These modes of marking are quite admissible, and have been sanctioned by many Inspectors, although they are not specifically stated in the official regulations for Registration.

Meaning of "Attendance."—As defined by the Board of Education, "*An attendance*," means attendance at secular instruction—

- (a) During at least *one hour and a half* in the case of a scholar in a school or class for infants ;
- (b) During at least *two hours* in the case of a scholar in a school or class for older children. The attendance of a half-time scholar* for less than two consecutive hours is not recognised, but this period of two consecutive hours is reckoned as an attendance and a half.

A separate register must be kept for half-time scholars ; and the certificate of the Inspector shall be conclusive proof of the number of attendances made by half-time scholars.

- (c) The marking of the registers for the afternoon meeting may not, without the special consent of the Board of Education, *commence within an hour of the close of the morning meeting.*

[The Time-table should provide for an interval of not less than an hour between the morning and afternoon meetings of the school ; but under special circumstances, as in the case of rural schools during the winter, this interval may be shortened by permission of the Board of Education].

* The term "half-time scholar" means a scholar certified by the Local Authority to be employed in conformity with the bye-laws, or, if not subject to the bye-laws, in conformity with the Elementary Education Act, 1876, or any other Act regulating the education of children employed in labour, and in either case recognised by the Board of Education as a half-time scholar.

The term "local authority" means the Local Education Authority acting under the Education (London) Act, 1903, or under Part III. of the Education Act, 1902, where that Act is in operation, and elsewhere the School Board or School Attendance Committee, as the case may be.

- (d) *The class registers must be marked and finally closed before the minimum time constituting an attendance begins. If any scholar entered in the register as attending is withdrawn from school before the time constituting an attendance is complete, the entry of attendance should be at once cancelled.*

[Special stress should be laid on the regulation that the minimum time constituting an attendance begins *when the registers have been marked*. The time actually spent in marking the registers *must not* be included in the minimum time for secular instruction].

- (e) The minimum time constituting an attendance may include an interval for recreation of not more than 15 minutes in a meeting of three hours (or, in the case of infants, of two and a half hours), and not more than 10 minutes in a shorter meeting. A meeting of two hours must include an interval of ten minutes for recreation.

[This interval for recreation is *compulsory*, and must be shown on the Timetable. Under favourable circumstances, the recreation should be in the open air; it should generally be of the nature of spontaneous play, but *practice* in previously known physical exercises may be considered "recreation." A *lesson* in physical exercises is not considered, "recreation"].

- (f) In making up the minimum time constituting an attendance there may be reckoned time occupied by instruction in any of the following subjects, whether or not it is given on the school premises or by the ordinary teachers of the school, provided that special and appropriate provision approved by the Inspector is made for such instruction, and the times for giving it are entered in the approved Timetable:—

Drawing.	Manual Instruction.
Science.	Physical Exercises.
Cottage Gardening.	Laundry Work.
Practical Cookery.	Household Management or
Dairy Work.	Domestic Economy.

To these may be added any other subject specially recognised by the Board of Education for the purposes of this Article.

- (g) (i.) Visits paid during the school hours under proper guidance to Museums, Art Galleries, and other places of educational value, or of national or historical interest, may be reckoned as attendances in accordance with sections (a) and (b) above, provided that the whole time spent at such places is

not less than an hour and a half; but not more than twenty such attendances may be claimed for any one scholar in the same school year, and the places to be visited and the arrangements for such visits must previously have been approved by the Inspector.

- (ii.) Attendances at a central examination (other than for Labour Certificates) may be reckoned as attendances in accordance with the foregoing sections (a) and (b), provided that the arrangements for such examination are previously approved by the Inspector, and that the time allowed for the examination is not less than an hour and a half.

[It is important to note that attendances at examinations for labour certificates, or at Scripture examinations, *cannot be reckoned* for the purpose of calculating the average attendance. These attendances should not therefore be registered].

- (h) In making up the minimum time constituting an attendance there may be reckoned time occupied in attending a Training College or Centre for Pupil Teachers for the purpose of model or criticism lessons.

Limits of Registration.—No attendance may be reckoned for any scholar *under three or over fifteen years of age*, or for any scholar while *habitually* employed as a monitor.

Even if children have passed in all the subjects of Standard VII., their attendances count both for Government Grant and Fee Grant, provided that the fifteen year limit is not passed. When a scholar reaches the age of fifteen, his name must be removed from the register, so that his attendances are not counted for the purposes of Grant, but he may still continue to attend the school.

Children between the ages of three and five cannot be refused admission to a school on other than reasonable grounds; but separate attendance and summary registers must be kept for children under five years of age. Such children cannot legally be compelled to attend school; and if enrolled they cannot be reasonably expected to attend with the same degree of regularity that is required of older children. Thus, statistics which include the attendances of these very young children will probably give an unreliable account of the regularity of attendance, and hence the need for their separate registration. The object of this rule is to provide facilities for ascertaining the regularity of the attendance of scholars who are *legally bound* to attend school.

The names of those pupils who attend school before the age of five should be transferred to the ordinary registers when they attain their fifth birthday. When the weekly summary is made up, the teacher should transfer the names of all children who have reached the age of five during the week.

In large schools it will generally be necessary to have two registers for those classes of infants which contain some children below and some above five years of age; but in small infants' schools and classes two registers will be sufficient—one for children under, and one for those over five.

Average Attendance.—The "average attendance" of any section of a school or department for which a separate return is necessary, for a school year or any other period for which a grant is payable, is the quotient of the total number of attendances made during that period, divided by the number of meetings during such period, a fraction of a unit being ignored or reckoned as an additional unit according as it is or is not less than one half.

The specimen of a Daily Attendance Register on page 56 shows all the items required. In Registers for fee-paying schools additional columns are provided for the registration of the weekly school fees. When these are necessary it is best to arrange the fee columns on a page *entirely apart* from the attendance columns; this will allow ample space for recording the attendances of an entire quarter on the same page without the necessity of a fly-sheet, while provision for entering addresses, admission numbers, dates of birth and admission, or any other details can be made on the pages for recording fees.

Rapidity in Marking Registers.—The attendances in a small class can be marked without much expenditure of time or effort; but in a large class the registration is a more difficult matter. The following plan has been found to ensure both rapidity and accuracy in such cases. At the beginning of the quarter (or year) each child is told the number against which his name stands in the class register. When the register is about to be marked, the teacher gives a signal to the children to begin calling out their *numbers* consecutively, the first child on the register calling out "*one*," the next "*two*," and so on, until the number of an absentee is reached. Suppose this is Number 10. After Number 9 has called out "*nine*," there is a pause; the teacher then calls out the *name* of the scholar whose number is 10, and if no response is given a nought, indicating *absence*, is put opposite the name and then Number 11 goes on. With practice this plan can be done quietly and rapidly, even when the children are occupied with a silent lesson such as Arithmetic or Writing; and no pauses occur except when a child is absent, and cannot thus call out its number. The teacher marks the *absences* only during the numbering, the strokes for *presence* being rapidly filled in after all have given in their numbers.

With class-registers in which the names only need to be written once per year, the plan is found to work exceptionally well, as each child keeps the same number throughout the year.

Some teachers facilitate registration by the adoption of a permanent place in the class for each scholar, so that a vacant seat at once indicates the absentee; this arrangement, however, is not always practicable.

Testing of Registers.—Every precaution must be taken to ensure accuracy of registration. The Managers are held responsible by the Board of Education for the efficient verification of the registration, and are required annually to furnish certificates in Form 9, to the effect that the Registers have been accurately kept, and duly verified from time to time. For this purpose the Managers should check the registers at least once per quarter after the time fixed for marking them, and should record the result in the Log Book.

After marking his register, every teacher should make a rule of checking the entries by counting the number present in his class before entering the total at the foot of the register.

A plan used with success in many schools is to appoint a trustworthy elder scholar as register monitor, whose duty is to deliver the registers to each teacher. While the teachers are marking their registers, the monitor counts the number of children in each class and enters it in a book specially ruled for the purpose; by the time he has obtained the total for the school, each teacher will have marked and checked his own register. The monitor now collects all the registers and lays them open on the head teacher's desk, together with his own book containing the number of scholars actually present in each class. If the totals in the class-registers correspond with those in the monitor's book, the obvious conclusion is that the registers have been correctly marked.

In all schools it is advisable to post up the total number of scholars present on a small blackboard specially ruled for the purpose, and containing spaces for a week's attendances. A very useful form of Attendance Board has been designed by the Educational Supply Association, and a sketch of this is shown on the following page.

The data are easily filled in from the return of the register monitor, and show at a glance the number of children present during each half-day, thereby affording both teachers and managers

a ready means of comparing the attendance of one half-day with another.

In addition to this attendance summary for the whole school, where the classroom system is adopted it has sometimes been found advantageous to provide an attendance blackboard for each class. When this plan is followed it will be found useful to have the board ruled in three vertical columns, the first containing the number of scholars *present*, the second the number *absent*, and the third the number *late*. Useful data for each class are thus shown at a glance, and where the number of absentees or late scholars is small, their *names* may be posted up instead of their number. Experience has proved this plan to be exceedingly useful for promoting habits of regularity and punctuality; and the time (less than five minutes per half-day) and effort spent in this direction have been amply compensated.

DREW ROAD COUNCIL SCHOOL					
BOYS' DEPARTMENT					
		On Register	Present	Late	Per centage
Monday	A.M.				
	P.M.				
Tuesday	A.M.				
	P.M.				
Wednesday	A.M.				
	P.M.				
Thursday	A.M.				
	P.M.				
Friday	A.M.				
	P.M.				
Total					

Correction of Errors in Registration.—As a general rule the registers are not finally closed until some time after the commencement of each school meeting, and thus a teacher usually has a fairly correct idea with regard to the presence or absence of the scholars in his class before the time fixed for the roll-call. Mistakes in registration, however, are sometimes inadvertently made, especially when the class is a large one, or when the teacher is interrupted by some cause or other while marking the register. The following is a brief summary of the errors most likely to arise, and the proper method of correcting them:—

- (1) When a child is marked absent through failure to answer his name, a stroke for *presence* should be drawn in *red ink* through the absence mark; and if the half-day's total has been entered at the foot of the register before the discovery of the error, + 1 should be placed beneath it, in the space for "Number Added."
- (2) When through inattention a scholar responds twice, and thereby causes an absentee to be registered as present, the mark for *presence* should be *cancelled* by drawing a ring round it; and if the half-day's total has been previously entered, - 1 should be placed in the space provided beneath for "Number Withdrawn."

In some forms of Attendance Register the same space serves for entering both Number Added and Withdrawn.

- (3) In extreme cases it may happen that at the end of the week the total number of attendances does not correspond with the sum of the ten half-daily totals. Here it will be necessary to find the error by adding up the columns vertically and horizontally; if it occurs in the weekly total of attendances made by any child, the incorrect number should be struck out with a single line, and the correct total entered beside it in red ink; if it occurs in one of the half-daily totals, it may be treated as already indicated, though in the latter case it ought to have been found when the register was marked on the half-day in question, if due care was exercised in checking the entries.

Whenever errors are discovered, they should be corrected immediately, and in such a manner that the mistake and its correction are both clearly shown; erasures of any kind are absolutely forbidden. In all cases it is advisable to add a brief explanatory note, initialled by the Head Teacher, at the foot of the column of the register in which the error occurs. In more serious cases (such as, for example, might occur when a new teacher inadvertently marks absent a number of scholars who are present in another class owing to reclassification for some special subject) a careful explanation of the circumstances should be written in the log book, in addition to the correction and foot-note in the register itself.

Minimum Number of School Meetings in a Year.—One of the conditions required to be fulfilled by a school in order to obtain an annual parliamentary grant is that the school must have

met not less than 400 times in a year. To this rule there are the following exceptions:—

- (a) If in consequence of a change of school year the grant is payable for a period other than twelve months, or if a school has only been on the Annual Grant List for a period forming part of a school year, the number of meetings required under this Article is to be altered in proportion to the length of the period.
- (b) If there has been a closure under medical authority or for any other unavoidable cause, the number of meetings required is proportionately decreased.
- (c) In making up the required number of meetings there may be included, if necessary, the number of meetings which would ordinarily have been made during times when the school premises were temporarily used, under Section 6 of the Ballot Act, 1872, for an election, or under any other statutory power.

In the case of Greenwich Hospital School and Marine Schools this Article will not be applied.

A school meeting ten half-days per week can make the minimum number of meetings necessary in forty weeks; hence most schools will make considerably over this minimum, and at the same time will have a margin for occasional half-holidays for local fairs, fêtes, etc.

Notice must be sent to the Inspector, as soon as is possible in each case, of every date upon which the school will be closed or its ordinary work suspended. These dates should include the usual and any special holidays, and any closure on account of epidemic sickness, local elections, and such occasions as Scripture Examinations, etc. In the event of failure to give such notice, a deduction not exceeding one pound may be made from the next annual grant.

Closure for Epidemic Sickness.—If a school is closed under a medical order on account of an epidemic for x weeks, the number of meetings required by the Code will be $\frac{46-x}{46} \times 400$. When in any school year such closure has made it impossible to complete 400 meetings, a certificate signed by a duly-qualified Medical Practitioner should be filed with Form LX, showing:—

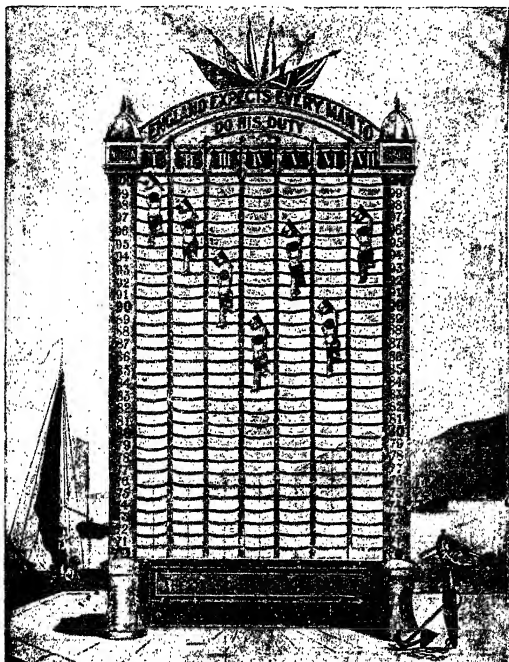
- (1) That the school was closed under medical authority.
- (2) The nature of the epidemic and the exact duration of closure.

Aids to Regularity of Attendance.—It has already been stated that irregular attendance is one of the greatest obstacles to progress with which teachers have to contend; for this reason, and also from the fact that the average attendance is the basis on which the Government grants are mainly paid to schools, it is clearly a matter of the highest importance to devise means for securing perfect regularity on the part of the scholars. The following are some of the plans which have been successfully adopted for raising the attendance to the highest possible level:—

- (1) In many schools the classes compete each week for the possession of an Attendance Bauner, which is awarded to that class which has the best average weekly attendance.
- (2) Cricket, football, swimming, and other clubs may be organised by the teachers for the direct benefit of perfectly regular scholars, and a little extra playtime occasionally allowed.
- (3) A monthly or quarterly Honours' List containing the names of all children who have not been late or absent once during the period may be prominently exhibited in the school, or printed or cyclostyled in pamphlet form (with a few well-chosen remarks on the advantages of regular attendance) for circulation among parents, or published in the School Magazine.
- (4) Prize schemes may be partially or entirely based on regularity of attendance; in some schools the issue of special Attendance Certificates at the end of each quarter or term has been found to afford great encouragement, the production of the full number of these being the necessary qualification for a prize; other school authorities award scholarships, medals, or watches after a certain number of years of perfect regularity and punctuality.
- (5) In many schools the interest of the scholars with respect to regularity has been well maintained by the adoption of the "Excelsior Attendance Ladder and Chart,"* of which reduced illustrations are here given. Those for school use are attractively printed in colours and the full size of each is 30 by 28 inches. The steps of the ladder are numbered from 70 to 100, and by an ingenious arrangement a sailor is

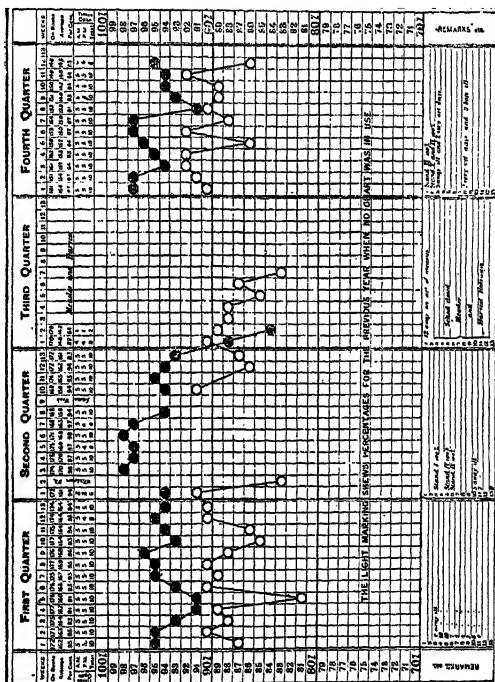
*Designed by Mr. S. Mussell of the Boys' National School, Alton, Hants.; and published by Messrs. G. W. Bacon & Co., 127, Strand, London, by whose permission the illustrations are inserted.

made to climb up and mark at the end of each week the percentage of attendance gained by the class which he represents. The Attendance Chart is a complement to the Ladder and shows at a glance the weekly percentage, average attendance, number on registers, number of times the school has been open, and any cause affecting



the attendance. The efficacy of the Ladder and Chart as aids to attendance is shown by the reduced fac-simile of the Chart here given. The dark circles are those for the year in which the Ladder was first used in a school; the improvement effected is clearly seen by comparing these markings with those of the previous year when

this aid was not in use. Both diagrams are inexpensive, and the healthy feeling of rivalry with respect to regular attendance which their use serves to stimulate among the scholars renders them worthy of extensive adoption.



(6) The general organisation of a school, and the quality of the instruction given in it, have an important influence on the attendance of the scholars. Lessons should be carefully prepared and well illustrated, and every effort made to interest the pupils. No case of absence should be overlooked; and where practicable it is a

good plan to require from parents a note stating the reason for a child's absence in every instance.

Registers and the Civil Year.—The *Civil* year is the period from January 1st to December 31st.

The *School* year is the period for which an annual Parliamentary grant is paid, this sum of money becoming payable on the day following the close of the school year.

The *Educational* year is the year arranged for teaching purposes, and need not be identical with either the civil or school years. The courses of instruction in special subjects must follow "educational years"; and for each subject the educational year must be the same for all schools in the area of a Local Education Authority, other than a County Council. With the sanction of the Board of Education, different educational years may be fixed for the same subject in different parts of the area for which a County Council is the Local Education Authority. For any school the educational years for Cookery, Laundry Work, Dairy Work, and Household Management must be the same.

As a general rule it is most convenient to teachers and managers, as well as to the Board of Education, that sets of registers should be closed at the end of each school year; but if it is an advantage to teachers or managers to close one set of school registers, and bring a new set into use at the end of the civil year, such a course will be permitted by the Board of Education, as there is no regulation in the Code which requires a single set of registers to be in use throughout the school year. This plan is chiefly advantageous where numerous certificates for exemption from school by the attendance qualification are required; for as these are in all cases given for the ordinary civil year, any other plan necessitates examining two years' registers in order to obtain each year's attendances.

Some Registers contain special arrangements for recording the attendances needed in granting labour certificates for age and attendance, thus greatly lightening the teacher's work in districts where many of these are required.

It is generally advisable for all schools in the same district to adopt a uniform *educational* year (even though the *school* years may not coincide), so that children who remove from one school to another at any period of the year will find a class suited to their stage of progress.

3. The Summary Register presents but little difficulty if kept with care and regularity. A Duplicate of Form IX. is generally given at the end of each yearly summary, and it is advisable to fill this up for future reference. Provision should also be made for various additional data often required by Education Authorities or Attendance Committees, such as the weekly percentage of attendance, and the number of children present at all or entirely absent during any particular week, etc. In fee-paying schools spaces must be provided in the summary for entering the total weekly and quarterly amounts.

A careful examination of the following forms for entering the summary returns required at the end of each school week, quarter, and year, will readily indicate the manner in which these records should be kept. As the summary forms differ slightly in the case of schools for infants and older scholars, specimens are given of each.

I. Form for entering the weekly returns required in the Summary Register of a school for older scholars.

<i>1st Week—ending</i>					190 .	
Class.	Total Weekly Attendances.		Number Present at all.		Number on Register.	
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.
1.						
2.						
3.						
4.						
5.						
6.						
Totals						

In an infant class in which the average attendance is less than 20, the attendances of the infants may be reckoned with those of the older scholars, provided that H.M. Inspector is satisfied that the infants are taught suitably to their age, and so as not to interfere with the instruction of the older scholars. In such a case the grant on the total attendances will be paid at the rate allowed for older scholars. But if the Board of Education are not satisfied that the above-named conditions are fulfilled, the grant may be paid on the average attendance of the older scholars only.

III. Form of Annual Summary in a School for older Scholars.

Annual Summary for the year ended 190 .														
Quarter ending	Times School has been open.		Total Attendances made by all the Children.			Average Attendance.			Number Present at all.			Number on Register.		
	M.	A.	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
1														
2														
3														
4														
Annual Totals or Averages.														

V. Form for Quarterly Summary in an Infant School.

Summary for 1st Quarter—ending 190 .																	
Week.	Times School has been open.		ATTENDANCES.												Number on Register.		
			Under 3 years of age.		Over 3 and under 5.		Over 5 years of age.		Total.		Grand Total.		Number present at all.					Average Attendance.
	M.	A.	Bys	GrIs	Tot.	Bys	GrIs	Tot.	Bys	GrIs	Tot.	Bys	GrIs	Tot.	Bys	GrIs	Tot.
1																	
2																	
3																	
4																	
&c.																	
Tot.																	

The Annual Summary in an Infant School may be made out in the same form as the Quarterly Summary given above, except that the left-hand column will be headed "Quarter" instead of "Week;" and the entire table will be simply divided into four horizontal spaces, corresponding to the four quarters of the year.

4. **The Log Book** should be kept as a permanent record. It should contain, in addition to the entries specified by the Code, a summary of the monthly or quarterly results of the work of each class; records of any changes in the staff or its arrangement; together with the dates at which members of the staff commence duty and leave. As soon as the Inspector's annual report on the school is received, a copy should be entered verbatim into the log book, followed by a list of the school staff, as settled by the decision of the Board of Education, and signed by the correspondent.

Entries once made in a log book should never be erased; but they may be altered or cancelled by a later entry.

5. **The Portfolio** must be of not less than foolscap size, and should be used to preserve all the official documents relating to the school, such as (a) Agreements with Teachers and Pupil Teachers; (b) H.M. Inspector's annual reports on the school; (c) Letters from the Board of Education, with copies of replies, or numbered references to such replies in a letter-book; together with all other official papers relating to the school. The documents should be arranged in sequence of time, and indexed for ready reference. As a general rule, one portfolio is sufficient for all the departments of a school.

The portfolio and its contents should be preserved with the greatest care. In the case of Council Schools it is usually kept by the Clerk or Secretary of Education; in other cases, by agreement with the managers, it may be kept by the Head Teacher at the school.

6. **The Register of Infectious Cases or Epidemic Register** serves to record all cases of absence owing to infectious and contagious diseases. Spaces should be provided for the name and class of the absentee, together with the date when the case was reported to the teacher. A table of Isolation and Quarantine should be given in the register, and thus the teacher is able in most cases readily to conclude when the child may safely be permitted to return to school. Some forms of Daily Attendance Registers now issued contain special arrangements for recording absence through infection, thus obviating the use of a separate register for the purpose. Although the Epidemic Grant is not now paid by the Board of Education, various data respecting absence owing to infectious diseases will often be found useful, and should therefore be recorded. A convenient form of Epidemic Register is annexed herewith.

FORM OF EPIDEMIC REGISTER.

No.	NAME OF CHILD.	ADDRESS.	CLASS.	Authority for Exclusion on ground of Infectious Disease.	Period falling within School Year during which Child has been excluded from attending School.						No. of Actual Mtgs. of the School during the Period.	NATURE OF DISEASE.
					Beginning.			Ending.				
					Dy.	Mo.	Yr.	Dy.	Mo.	Yr.		
1	Kelly, Alfred.	6 Park Rd.	II.	Medical Certificate	13	2	05	24	3	05	66	Dysentheria.
2												
3												

Diphtheria.

7. **The Transfer Book** is useful for recording the names of all scholars transferred from one class to another; thus serving as a fair index of progress. In some schools the most intelligent scholars may be promoted twice in one school year; it may also be sometimes wise to remove scholars from a higher class to the next lower in which they may be better fitted to make progress.

8. **The Fee Book** contains a statement of the weekly fees paid by each scholar, and the weekly or quarterly totals received in the school. As most schools are now free, their teachers are relieved from the necessity of keeping this book, though it is still often used in fee-paying schools; in these latter cases, however, the use of a special Fee Book may be obviated by the provision of extra columns for fees in the attendance registers, thus facilitating comparison of fees with attendances, as well as obviating the necessity of writing out every scholar's name afresh, which is unavoidable when a separate Fee Book is used.

9. **A Visitors' Book** is often used in schools for the purpose of recording the names and opinions of various interested visitors to the school (other than Managers and H.M. Inspectors), who are precluded from making entries in the log book. Where a quarterly or half-yearly "Parents' Day" is available in a school, this book will often contain useful and valuable records.

10. **Class Records and Syllabuses of Work** are dealt with in the chapter on Construction of Curricula.

EXAMINATION QUESTIONS AND NOTES.

[A knowledge of the proper methods of keeping School Records forms an essential part of the Teacher's Certificate Examination papers of the Board of Education, from which all the following questions have been selected. In cases of doubt or difficulty it has been thought advisable to add a few hints in order to assist the student in answering the questions.]

1. What registers are required in all public elementary schools? What rules are prescribed for marking the daily register and checking the entries? A child is marked absent who is excluded under medical order; how should the mark be distinguished?

2. How is the average attendance at a school for the year found? A boy is promoted from the infants' class to the department for older scholars in the middle of the school year; how will his attendance be registered and counted? The average attendance at a school that has

met 430 times was 100, but on 10 half days of the year, the average fell to 50; find what the average attendance would be if those days were disregarded.

The calculation is readily performed as follows:—

$$\frac{(430 \times 100) - (50 \times 10)}{(430 - 10)} \quad 101.19 \text{ Ans.}$$

3. Construct a model register for six scholars' attendance for one week. One boy is absent the entire week; another is present half-time; a third is withdrawn on Wednesday afternoon, and his attendance cancelled; and a fourth comes too late for registration on the Friday morning. Make up the returns for entry in the summary at the end of the week.

The entries for the summary will be:—

(a) Total attendances	=	43.
(b) Average attendance	=	4.3.
(c) Number present at all	=	5.
(d) Number on Register	=	6.

4. How do you calculate the quarterly and yearly average attendance for a school consisting of boys, girls, and infants, when some of the last are under three, and some of the first have passed Standard VII.?

5. State the different meanings of the term "Attendance." Show by specimen, how you cancel an attendance in a register. How many times must a day school be open for attendances in a year? When may a child be relieved from attendance altogether, and under what conditions is it allowed to make half-time attendance? How would you secure the correct marking of registers at every attendance in a school of 500 scholars?

6. (a) What entries must be made at the close of each week in the Register of Summaries (i.) in an infant school; (ii.) in a school for older scholars? What entries are required for the Quarterly Summary in each case?

(b) State the rule for registering the attendance of scholars absent from their own schools, but attending a centre for manual training or cookery.

7. Define "average attendance." How can it be used to test the regularity of attendance correctly? Why is it useful to ascertain the "average number enrolled"?

8. What is meant by the term "Half-time Scholar"? What additions may be made to the attendances of a half-time scholar who has been quite regular during the entire school year; and how will his attendances be dealt with if he has attended school half-time for a part of the year and full-time during the remainder?

9. What means can you suggest for securing rapidity and accuracy of registration in a very large school?

10. What are the rules for closing registers? How do you deal with the attendances of children who enter or leave school between the time for closing registers and dismissal?

At least 2 hours' *secular* instruction in an upper department, or $1\frac{1}{2}$ hours in an infant school, must be given in order that the school meeting may count for *Attendance Grant*. Hence, the registers must have been marked and closed for these respective periods before the conclusion of secular instruction; for example, if in an upper department the secular lessons are taught from 10 a.m. till 12, the registers must be marked and finally closed *before* 10. Any scholar not present at 10, must be marked *absent*, and similarly, the attendance of any child who leaves school before 12, must be *cancelled*. In some schools, the registers are closed at 9.30 a.m., so that the minimum time required for secular instruction is completed at 11.30, thus allowing a margin of time for any pupils who may be withdrawn before the dismissal of the school.

11. Explain how it is possible that the total average attendance in a school may be high as compared with that of other schools, and yet the average number of days on which each child has attended may be low.

This is owing to the fact that the average attendance is the quotient of the number of times the school has been open into the total number of attendances made during the given period. Hence the *smaller* the number of days in the divisor, the *larger* the quotient must be.

12. From the following particulars of a week's attendance in a class of 50 scholars calculate (a) the number of attendances, (b) the average attendance, (c) the percentage of attendance.—The attendance was regular with the following exceptions:—There was a holiday on one half-day; 3 scholars were absent the whole week; 8 were absent 4 times; on one occasion 2 came in just after the register had been closed, and 2 were withdrawn before the completion of the minimum time constituting an attendance.

Describe the various marks to be used in the foregoing cases, and say how the absence mark may be cancelled in the case of scholars attending a class for special instruction at Centres for Cookery, Handicraft, etc.

What entries must be made at the foot of the attendance register, and when should they be made?

The numerical results are:—

(a) Total number of attendances	=	387.
(b) Average attendance	=	$387 \div 9 = 43.$
(c) Percentage of attendance	=	86.

[The above calculations assume that the eight children who were each absent 4 times, were away on 4 half-days *in addition* to the half-holiday given to all].

13. What other records are required to be kept in a school in addition to the registers? Give a brief account of their uses and the chief points to be observed in keeping them.

14. Enumerate the chief particulars which must be shown in the Admission Register with respect to each scholar. When may a child's name be removed from this register?

15. What particulars is it desirable to enter in the Admission Register? When should these particulars be entered, and why is it advantageous to record them?

16. Explain clearly how you would obtain the different averages of attendances, *viz.*, the weekly average of the whole school, annual average of the whole school, and highest weekly average in the year. State how you could verify the two former results.

- (a) The weekly average is found by dividing the sum of the weekly attendances by the number of times the school has been open during the week.
- (b) The annual average is found by dividing the total number of attendances made during the year by the number of times the school has been open during the same period.
- (c) The highest weekly average will be selected from all the weekly averages obtained throughout the year.
- (d) In order to verify the two former results, the sum of the weekly averages, divided by the number of weeks the school has been open, should be equal to the total number of attendances for the year, divided by the number of times the school has been open during the year.

17. Give a specimen of the Class Register, framed for one week's entries and twelve names, showing the following data:—

- (a) Of those marked at any meeting, two-thirds were present at any meeting (9 a.m. and 2 p.m.), and the rest came in before the registers and doors were closed (9.15 and 2.15).
- (b) On Wednesday morning the weather being stormy, less than half the scholars appeared.
- (c) On Thursday all were allowed to leave the premises at 11, to view a procession entering the town, and did not return till the afternoon.
- (d) On Friday afternoon some of the girls were attending a cookery class, and some of the boys attending a science class elsewhere.

Enter the appropriate marks and the numbers at the foot of the column, and quote such brief entries as should be made in the Log Book relating to these facts. Make out the week's summary.

18. On a certain occasion all lessons in a school were stopped after half an hour's work, and the children assembled in the school hall for the distribution of attendance prizes and medals, the ceremony lasting two hours: Can this time be reckoned as an "attendance"?

Two interpretations are here possible, and the answer may be either negative or affirmative according to the point of view from which the question is considered.

- (a) On the assumption that the full time for secular instruction required for an *attendance* within the meaning of the Code has not been completed, the occasion cannot be legally reckoned as an "attendance."
- (b) Assuming that all the circumstances connected with the distribution of the attendance prizes will serve as an incentive to regular and punctual attendance and steady work in the future, the entire ceremony may be looked upon as secular instruction in its highest sense, and therefore the time may with perfect legality be reckoned as an "attendance" within the meaning of the Code.

Provided that a full account of the circumstances is written in the Log Book, the registers may be marked and the attendances counted just as usual. This is generally the course which is followed in actual practice, and has been officially sanctioned by the Board of Education.

19. The Clerk to a School Board had instructions to order all the schools belonging to his Board to close on Wednesday morning. The letters were not delivered until the middle of the Scripture lesson at 9.25 on the same morning; and the schools were immediately dismissed. Would this have any effect as regards the average attendance of these schools?

Since a legal *attendance* as defined by the Code requires secular instruction during two consecutive hours after marking and closing the registers in the case of scholars in a school for older children, and during an hour and a half in the case of infants, it is evident that the occasion above referred to cannot be reckoned as an attendance. Assuming that no other holidays were given during the same week, the average attendance would be obtained by dividing the total attendances made during the remaining half-days by nine, no notice whatever being taken of Wednesday morning, when the registers would not be marked. Hence the occasion referred to *would not have any effect as regards the average attendance.*

20. What is to be done in registration if—

- (a) One child goes home without leave at recreation time, and another comes in then, not having been present before?
- (b) A child marked absent is found to have attended a cookery lesson?

21. What subjects not taught on the school premises may be counted in making up the minimum time constituting an "attendance" under the Code?

22. What do you mean by the *closing* of a Class Register for a morning or afternoon meeting? What acts of carelessness or irregularity on the part of teachers and scholars should be guarded against on these occasions?

23. What exceptions are admitted to the general regulation, that in order to receive a grant, a public elementary school must be open at least 400 times in the year?

24. What are the chief difficulties in the way of regular attendance? How can teachers (a) encourage regular attendance; (b) ascertain the cause of irregularity?

25. Explain why erasures should never be permitted in any of the registers or other school documents.

If erasures were permitted it would be very easy for anyone so inclined to falsify the registers by altering figures, absence marks, dates, names, etc. Erasures of any kind leave behind them a suspicion that they have been made with a dishonest intention, though of course this may not have been the reason in many cases; there is no likelihood of suspicion, however, when no such erasures are made. Whenever an error has been made, it should be corrected in such a manner that the mistake and its correction are both clearly shown.

26. What particulars have to be supplied for Form 9 from the registers?

27. When should class registers be marked? What checks would you have on their accuracy? Why is it necessary to verify the registers at each school meeting?

28. Describe a scheme of attendance prizes. What other means of encouraging regularity of attendance do you know?

29. (a) A teacher when checking his register finds that a boy who was *present* did not answer his name and was marked *absent*. How should this be rectified? (b) On another occasion a boy through inattention answered his name twice, and thus caused another boy who was *absent* to be registered as *present*. How should this be remedied?

30. In the Class Registers, how will you ensure the *correctness* of (a) the number entered at every meeting at the foot of the attendance column? (b) Of the total attendances of the week, and of the quarter? How would you deal with the registration of scholars who come too late to be marked in the registers, and how would you mark holidays and days devoted to Examinations in Religious Knowledge?

31. (a) If the school attendance is irregular, describe in what form you could, from the Registers, draw up a statement to put this irregularity in a striking light. (b) How do you find the average number of times attended per week by each child present at all, and of what use is this number? (c) How would you record *punctual* attendance? (d) Why would you write up the daily attendance in view of the school?

32. (a) What are the duties of the Managers respecting each kind of register? To what extent may pupil teachers be employed in registration? (b) Why must no children be allowed to attend without having their names entered on the Admission and Class Registers?

33. If a school opens 425 times in the year, and two half-timers attend respectively 212 and 214 times in the year, what is the largest number of additional attendances that may be claimed for each?

In the first case 106 (*i.e.*, half the number of two-hour attendances actually made) may be added, so as to bring the total to 318 or *three-fourths* of the number of times the school has been open. In the second instance, the number of additional attendances must obviously be $318 - 214$, *i.e.*, 104; for if a larger number were added the total would exceed three-fourths of the number of times the school has been open. [At first sight a student might be inclined to add half of 214, *i.e.*, 107, in this case; but this would give a total of 221, which is greater than three-fourths of 425].

The largest number of additional attendances is thus 106 in the first case and 104 in the second. Ans.

34. At the end of the week a teacher finds that the sum of the total attendances made by each child does not equal the sum of the ten half daily totals. What should he do if the number entered on Monday afternoon be (a) two too many; (b) one too few; and (c) if the weekly total has been entered for one scholar as 9 instead of 10?

35. Draw up a suitable register for recording particulars of Epidemic claims. Of what use are these details?

36. Distinguish between the terms "School Year" and "Educational Year," and state why it is advantageous for all schools in the same district to have a uniform educational year.

37. In a certain school the average attendances for the four successive quarters of the year were 94, 96, 95, and 97.5; and the number of scholars present at all was 100. Find the average number of days' instruction received by each present at all during the year, if there were six weeks' holiday and ten occasional holidays. Assume that the school was open for five days in each week.

If each of the ten occasional holidays occupied a *whole* day it is readily seen that instruction has been given on

$$[52 \times 5 - (6 \times 5 + 10)] = 220 \text{ days.}$$

The average attendance for the year is

$$\frac{94 + 96 + 95 + 97.5}{4} = \frac{382.5}{4} = 95.625.$$

Hence, if x denote the average number of days' instruction received by each present at all, it is evident that

$$100 : 95.625 :: 220 : x$$

$$\text{Therefore } x = 95.625 \times 2.2 = 210.375. \text{ Ans.}$$

If the ten occasional holidays each occupied only *half a day*, it is clear from the foregoing solution that instruction must have been given on 225 days altogether, and by the same method of working the final result is shown to be 215.15625. Ans.

38. Make out and complete a register for 10 girls for a week, and calculate the average attendance and the average number of times attended by each child present at all. Give also the entries required for the Summary Register. The attendance was influenced by the following circumstances:—Wednesday afternoon was a half-holiday, and two girls were absent owing to illness on Thursday and Friday; one had to leave every morning before completing her attendance, and eight attended a Cookery Centre on Thursday afternoon. Two girls were absent on Monday afternoon without known cause, one all day on Thursday, and one on Friday afternoon.

The total number of possible attendances is 90, and from the question it is seen that the number lost is 18. The attendance at the Cookery Centre will be distinctively marked in the register, but will be reckoned in the weekly total, so that the number of attendances actually made is 72. Hence the Average Attendance is 8 (since the school was only open nine times), and the Average Number of Times attended by each child present at all is 7.2. ($72 \div 10 = 7.2$).

The entries required for the Summary Register will be:—

(a) Weekly attendance total	=	72.
(b) Number of times school has been open	=	9.
(c) Average attendance	=	8.
(d) Number present at all	=	10.
(e) Number on Roll	=	10.

39. Explain how to calculate the number of school meetings required by the Code, when the school has been closed for some time on account of an epidemic.

40. (a) Give the rules affecting the attendance of (1) half-timers, (2) children under three years of age. How would you indicate (3) admissions and re-admissions, (4) holidays? What regulations are laid down with regard to (5) responsibility of School Managers for the accuracy of registers, (6) preservation of registers?

(b) Calculate the average attendance of a school which has been open during 43 complete weeks of the year, the total number of attendances being 43,482.

Assuming that the school has been open for ten half days per week the average attendance is obviously $\frac{43,482}{430} = 101.12$.

41. State briefly the objects of keeping a Transfer Book and Visitors' Book among the School Records.

42. What are the most important particulars which should be entered in the Log Book, and by whom should such entries be made?

43. By what steps would you seek to enlist the interest of parents with a view to securing the regular attendance of their children at school?

44. What is the School Portfolio? What should be its contents, and by whom may it legally be kept?

CHAPTER V.

CONSTRUCTION OF CURRICULA.

Purposes of Curricula.—The object of the instruction in all schools is two-fold,—to convey information to the minds of the children, and to stimulate them to acquire knowledge for themselves. The education of every child should aim at the training and development of his various powers by the communication of knowledge; it should recognise the mind as a whole, and not as a mere accumulation of parts; and no matter whether the faculty be the hand or the eye, the reason or the imagination; or whether the knowledge be of nature or of art, of literature or of science, if it be so imparted as to exercise, and train, and develop the mind of the child, and to lead him to think and act for himself, the process is rightly termed Education.

General Principles to be observed in the Construction of Curricula.—The head teacher of a school is now primarily responsible for determining the course and character of the instruction given in it; and therefore at the beginning of each school year (or educational year when this does not coincide with the school year) he must draw up a syllabus of the work intended to be done during that year. This should comprise a detailed scheme of instruction in each subject of the curriculum, and must be kept at the school, in order that it may be produced to the Inspector at his visits. A summary of the syllabus should also be drawn up and entered in the Log Book; and a copy of this summary should be forwarded to the Inspector for his approval before the beginning of the school year. When once sanctioned by the Inspector the schemes of instruction must be carefully adhered to throughout the year. The summary in the Log Book should show at a glance, and in a concise manner, the whole curriculum of the school.

A well-planned syllabus of instruction should be drawn up with due regard to the following requirements:—

- (1) Suitability to the circumstances of the children and the district in which they live; the curriculum of a rural school will thus differ in many respects from that of one situated in the centre of a large manufacturing town or mining district; the instruction in a half-time school cannot be so full and detailed as in one where the scholars attend full-time; and so on.

- (2) Suitability to the classification of the children, the time available for secular instruction, and the number and qualifications of the teachers. Hence no subject should be included in the curriculum unless it can be efficiently taught in the ordinary school hours.
- (3) In infant schools a due proportion of the course of instruction should be assigned to manual exercises and recreative employments; in schools for older children, English (by which is to be understood reading, recitation, writing, composition, and grammar in so far as it bears upon the correct use of language), and arithmetic should constitute the basis of the curriculum.
- (4) Logical sequence of lessons, so that each may have a definite aim in view; and correlation of subjects wherever practicable. As far as possible the course of instruction should be a connected and coherent whole.
- (5) Stimulation of self-reliance and prompt obedience.
- (6) Training of the faculties for the work of life; the various mental, moral, and physical capacities of the pupil must be exercised according to the order and strength of their development, and mere accumulation of knowledge made subservient to the true development of the mind.

Curriculum in Infant Schools.—The course of instruction in Infant Schools and classes should, as a general rule, include suitable lessons in reading, writing, and numbers, simple lessons on common things, appropriate and varied occupations, needlework, drawing, singing, and simple physical exercises.

In all infant-school teaching the prime object to be kept in view is *the development of the capacities which already exist in the children, by the employment of the most natural and best possible methods*. To this end the two leading principles which should be regarded as constituting a sound basis for the education of early childhood are:—

- (1) The recognition of the child's spontaneous activity, and the stimulation of this activity in certain well-defined directions by the teachers.
- (2) The harmonious and complete development of the whole of the child's faculties.

The teacher should pay especial regard to the love of movement, which alone can secure healthy physical conditions; to the observant use of the organs of sense, especially those of sight and touch; and to that eager desire of questioning which intelligent children exhibit. All these should be encouraged under due limitations, and should be developed simultaneously, so that each stage of development may be complete in itself.

With regard to the choice and combination of subjects in the curriculum of the infant school, almost absolute freedom is now granted to the teacher, though it is evident that the subjects already mentioned should form the basis of the instruction. The all-important question, however, is not so much what the children learn at this early period as how the instruction is given. Even play and work can go by concurrently in the infant school and be made mutually helpful; *e.g.*, counting, addition, subtraction, and the easiest multiplication tables can be taught during such recreations as swinging, sec-saw, and skipping. Similarly the so-called Elementary Subjects, when taught by right methods, can be treated with greater variety and interest; Reading becomes a Kindergarten lesson through pictures and word-building. Writing becomes a variety of Kindergarten drawing; and elementary exercises in Number are associated with many of the Kindergarten occupations.

Correlation of Lessons. —“*The business of the school,*” said Froebel, long ago, “*is not to teach a multiplicity of things, but to give prominence to the ever-living unity in things.*” It is an axiom that isolated knowledge is practically useless; and therefore one of the most important considerations underlying true methods of teaching especially in the infant school, is the association of one lesson with another through some leading principle or idea. Only in so far as it is linked and associated with what is already in the mind, can any new matter be thoroughly grasped and assimilated. For instance how much more definite and complete a child's ideas of a silkworm will be if he has watched it develop from day to day, has modelled the shapes of worm and cocoon in clay, and has drawn its outline, than if he has only had a single lesson on the subject! Or how much more careful and enthusiastic will be his study of a wallflower if he has planted and watered it with his own hands, watched the plant grow and its flowers gradually develop, drawn and coloured the leaves in crayon or brushwork, pricked and embroidered a simple outline, sketched it with chalk or pastel on the blackboard as a free-arm drawing exercise, read and written easy sentences about it, and even performed simple calculations with reference to the leaves, stalks, and flowers—than if he has heard one isolated lesson about it, preceded and followed by entirely different subjects! Hence, though school work may be as varied as possible in form, some definite idea should run as a bond through it all, and lessons should not only be connected throughout each day, but also from

day to day; where practicable, the inter-connection may be extended during the whole month or season. This correlation of lessons and exercises tends to give greater interest in school work, and the impressions thus made are likely to be deeper and more lasting; for since the subject or principle to be taught is brought before the children in a variety of ways, it thereby finds a readier entrance to their minds, and even if it does not reach them through one channel, it will probably do so through another. Thus picture stories, object lessons, kindergarten games and occupations, reading and writing lessons, and even simple exercises in arithmetic may all be usefully combined for one purpose; for instance, if the infant teacher wishes to impress on her class some knowledge of a domestic animal, she may usefully combine the object lesson for a general study of its structure; a song or simple recitation, story, or kindergarten game bearing on its habits and association with human life; reading and writing lessons consisting of sentences taken from the story, or simple statements formed by the children themselves during the oral lesson; some occupation, such as pricking and embroidering the outline, drawing, clay-modelling, or paper-cutting, to impress an exact knowledge of its form; easy lessons in counting legs, feet, eyes, etc., and so on. Mere repetition of the same exercises and lessons, however, should be avoided, and the whole scheme of instruction should be made progressive as far as possible, so that each exercise may lead up to something beyond itself. By the employment of such methods as these, instruction will be rendered less formal, and more varied and attractive; unity of thought will be developed, interest maintained, and memory strengthened; and thoroughness of work ensured in consequence, to a degree otherwise unattainable.

At the same time the children should be encouraged in every way to give expression in their own words as to what they observe or know, and what they want to know.

SCHEMES OF CORRELATED INSTRUCTION.

The following schemes are intended to be suggestive rather than exhaustive, though each has been practically tested and found to fully answer its purpose. It is to be understood that exercises in reading, writing, and counting are to be based on each lesson; that the stories are to be illustrated by pictures or drawings in coloured

chalks, and conversational methods are to be mainly employed throughout; and that the teaching of mere *facts* is to be made entirely subservient to training the powers of observation and enlarging the vocabulary. The lessons may be taken in any division of the school, provided that they are adapted to the age and proficiency of the scholars; for example, a lesson on "A Bird's Nest" to the lowest class should be followed by an expanded lesson on the same subject in the middle division, and by still further amplification when given to the highest class. In the same way the various illustrative kindergarten occupations should be selected with due regard to the age of the children and their powers of manipulation. As far as possible the "objects" chosen for the lessons should be such as can be illustrated by means of specimens collected by the children themselves on School Journeys or Nature Walks conducted under the teacher's guidance; and in no case should any object be chosen which the teacher herself cannot thoroughly illustrate. A School Garden or School Beach will also be found of great service in illustrating and enforcing many of the lessons, though unfortunately these are not always available.

In the case of country schools, however, rambles in the lanes and woods will afford useful material for observation, while in town schools the public parks or museums may sometimes be utilised for a similar purpose, though to a less degree.

The following is a brief summary of the aims which the teacher should keep in view with respect to the schemes of instruction :—

- / (a) Uniform mental and physical development.
- (b) Uniform training in habits of observation and attention.
- (c) Extension of the vocabulary and powers of description.
- (d) Provision of active employment for all.
- | (e) Stimulation and encouragement of a desire for knowledge.

In other words, the *learners* and not the *subjects* learned, should be the most important factors of the instruction.

It is not expected that in actual practice any of these schemes will be taken in its entirety, as the circumstances of the school must be considered in determining what exercises should be included or omitted. Only so many subjects for lessons should be selected as can be dealt with in the year without overburdening the scholars. The titles of the stories, songs, and recitations are also here given merely as samples; most experienced teachers of infants should be able to choose others which will serve their purpose quite as well.

SCHEME I.—BASED ON THE SEASONS.

NATURE OR OBJECT LESSONS.	STORIES.	GAMES, SONGS OR RECITATIONS.	ILLUSTRATIVE KINDERGARTEN EXERCISES.
<p>SPRING.</p> <p>A Spring Day. Snowdrop. Primrose. Woods in Spring. A Tree and its parts. A Bird's Nest. The Cuckoo. The Skylark. The Swallow. Rain and its work. The Plough. Seed-time.</p>	<p>Spring & her helpers. The despised bulb. Little seeds of kindness. The oak and the ivy. The honest woodman. The clever builders. The raindrop. The cuckoo. What the swallow saw. Red Riding Hood.</p>	<p>Games: The babes in the woodman. [wood]. The ploughman. Little birdies. Songs: The cuckoo. The skylark. Spring is coming. Catch the sunshine. Recitations: The Boy & My garden. [the Nest]. The raindrops.</p>	<p><u>Drawing & Brushwork</u>: Leaves and flowers in simple outline. <u>Clay-modelling</u>: A Bird's Nest. A Caterpillar. Eggs. Easy floral forms. <u>Pricking & Embroidery</u>: Birds, trees, and flowers in outline. <u>Paper cutting</u> of shapes already drawn.</p>
<p>SUMMER.</p> <p>A Summer Day. The Farmyard. The Farmer and his work. Animals of the farm. Hay-making. Sheep-shearing. The bee. The butterfly. Summer flowers. Parts of a flower. How Plants live and grow. The snail, slug, and worm.</p>	<p>The farmer and the birds. The two doves. The lost chicken. The ugly duckling. The little haymakers. The clever sheep-dog. The drone, and what became of him. The ants and the grasshopper. The butterflies in a shower. The cow that lost her tail.</p>	<p>Games: The little hay-farmer. [makers]. The little gardeners. The market. Songs: The flowers. A summer song. The farmyard. Six jolly waggoners. The farmer's boy. The rainbow. Recitations: The Rose. The Pig, Dog, and Cow. The sunbeam. Baa-baa Black Sheep. The Caterpillar and Butterfly.</p>	<p><u>Drawing and Brushwork</u>: A barn, plough, dog-kennel, gate; simple outlines of leaves and flowers; a snail's shell; a boat. <u>Clay-modelling</u>: Leaves, flowers and roots; straw hat; bee-hive. <u>Wire & Pea work</u>: A bee-hive; dog-kennel, pig-sty, gate. <u>Stick-laying</u>: A cow-shed, farm house, dog-kennel, gate. <u>Paper cutting</u> of various forms already drawn, and coloured, to be afterwards mounted on brown paper. <u>Special Nature Walks</u> to collect specimens of leaves, flowers, etc.</p>

NATURE OR OBJECT LESSONS.	STORIES.	GAMES, SONGS OR RECITATIONS.	ILLUSTRATIVE KINDERGARTEN EXERCISES.
Signs of Autumn. Autumn fruits. Nuts and Acorns. The Squirrel. Reaping. Threshing. The baker and his work. Bread. Butter. Clothing. The shoemaker. The railway train.	The cunning fox. The little nut-crackers. The thrifty squirrels. The reapers. The little gleaners. The babes in the wood. The story the milk told me. Do you like butter? Little boy blue. The apple tree's story. A journey in the train.	Games : Imitations of various trades. The railway train. Songs : The water-mill. The brooklet. Autumn. The rain. The cobbler. Recitations : How bread is made. The flowers' complaint. How the leaves came down.	<u>Drawing and Brushwork</u> : Easy outlines of leaves, flowers, fruits, and birds; a sickle, churn, basket, pan, milk can. <u>Clay-modelling</u> : A loaf, a pat of butter, an apple, pear, plum, nut <u>Pricking & Embroidery</u> of leaves fruit, birds, farmhouse. <u>Paper cutting and mounting</u> : outline of a tree, leaves, fruits, and birds. <u>Paper folding</u> of farmhouse, baker's cap and apron. <u>Special Nature Walks</u> to gather leaves, which should after- wards be pressed and mounted.
Winter. Snow and Ice. The Laplander. The Reindeer. Evergreen trees. Holly and ivy. Christmas. The Robin. Indoor Occupations. Indoor pets. Kindness to Animals. Coal and the coal mine.	Jack Frost. The busy Lapp. The birds' Christmas. Santa Claus. The robins. Christmas in the Barn. The stone that re- bounded. The snow man. The St. Bernard dog The coal miner and his work.	Games : The snow man. The Laplander. Running, marching, and ring games. Songs : Robin Red- breast. Windy winds. The beautiful snow. Snow-white princess. Merry sliding. Recitations : I love little pussy. The snowflakes. Father Christmas. The old black cat.	<u>Drawing & Brushwork</u> : Leaves of ivy, holly, and mistletoe; outline of robin, orange, nut, etc. <u>Clay-modelling</u> : An orange, nut, snow man, snow house, Christ- mas pudding. <u>Pricking and Embroidery</u> of simple forms already men- tioned. <u>Paper folding, cutting, and mounting</u> of ivy and holly leaf, robin, etc.

AUTUMN.

WINTER.

SCHEME II.—BASED ON THE MONTHS.

This is really only a modification of Scheme I., and the same stories, songs, occupations, etc., will apply; hence only the subjects of the lessons need here be mentioned.

January.—Snow, Snowdrop, Ice, Reindeer.

February.—Rain, An umbrella, Crocus, Buds.

March.—Spring, Primrose, Silkworm, Sheep and Lambs, The Wind and its work, Umbrella (revised).

April.—Rain and its work (revised), A River, Daisy, Buttercup, Daffodil, Cow and Calf, Birds.

May.—Forms, colours, and names of common flowers. Frog, Silkworm (revised), Birds (continued).

June & July.—Summer, Farmer and his work, Farmyard, Bee, Butterfly, Rose, Poppy.

September.—Wheat, Bread, Blackberry, Apple and other fruits, Squirrel, Birds (revised).

October.—Autumn, Leaves, Parts of a Plant, Trees, Coal.

November.—A Foggy Day, Sparrow, Fishes, Clothing.

December.—Winter, Holly, Ivy, Christmas Pudding.

As previously stated, the children should be encouraged whenever practicable to bring specimens or pictures to illustrate the lessons, and if possible the teacher should always endeavour to make use of these, in addition to her own illustrations. In this way a deeper interest in the lessons will be secured than would otherwise be possible, while at the same time independent effort will be fostered.

SCHEME III.—BASED ON CONNECTION AND CONTINUITY.

Instead of referring to a particular time of the year, the lessons are here arranged in a progressive series, each being suggested in one or more respects by the preceding. In the first lesson the teacher will emphasise those points which will be required in the second, and so on throughout the series, the objects being studied more as types than as individuals, thus leading to simple generalisations. Each lesson thus bears a fairly precise relation to the others. As in the previous schemes, however, the whole of the teaching in each section should as far as possible be grouped round one central idea, and story, kindergarten games and occupations, nature lesson, reading, writing, and counting all serve to bind the work into one connected whole.

	NATURE OR OBJECT LESSON.	CONNECTING LINK.	PICTURE STORY.	KINDERGARTEN OCCUPATIONS.
1	Dog.		"The sheep-dog," "The railway dog," & "The St. Bernard."	Building and drawing dogkennel; pricking and embroidering outlines of dog and kennel. Pricking and embroidery.
2	Fox.	Similarity of structure and appearance. Similar haunts and habits.	The fox and the goat. The fox and the crow. Mrs. Grey-fur's party.	Sand model of burrow; pricking and embroidery; brush drawing of simple outline.
3	Rabbit and Hare.			Building, weaving, and drawing a mousetrap; clay models of loaf and cheese; pricking and embroidery.
4	Mouse.	Similarity of home.	The town mouse and country mouse.	Free-arm and brush drawing of simple outline; embroidery; paper cutting and mat weaving of a bed for pussy.
5	Cat.	Reference to previous lesson.	"The cats and the gardener," and "The naughty pussy" (both based on Louis Wain's pictures); the two cats in Nestlé's Milk advt. "The eagle and child."	Draw beaks, heads, and claws of birds; clay model of nest & eggs. Drawing of nest, eggs, and tree; paper folding & cutting of tree. Making real daisy chains (if possible); paper folding and cutting; drawing and embroidery. Pricking and drawing.
6	Birds of Prey.	Reference to preceding and comparison of birds and beasts.	The skylark.	
7	Singing Birds.	Comparison with preceding.	The cat and the canary. The daisy.	
8	Buttercups & Daisies.	Most plentiful when the birds are singing in spring & summer.	The violet.	
9	Parts of a flower.	Reference to previous lesson.	The rose queen. Our garden.	Brush drawing, paper folding and cutting; embroidery.
10	The Rose.	Reference to foregoing lessons.		As above.
11	Summer flowers.	Reference to above lessons.	The queen bee and her servants.	Drawing of hive; also models with clay, pea-work & paper folding.
12	The Bee.	Visits the flowers to gather honey.		

SCHEME IV.—BASED ON COMPARISON OR CONTRAST.

The occupations, games, and stories already enumerated may be readily adapted to the lessons in this scheme. The fundamental principle here, however, is to train the children in habits of careful observation, so as to note the points of resemblance and difference in the subjects dealt with; and by requiring them to state in their own words what they notice, special practice in *oral composition* is afforded, the statements thus formed afterwards serving as the basis of reading and writing lessons.

Comparison of:—

- | | |
|-----------------------|--------------------------|
| 1. Cat and Dog. | 11. Tree and Flower. |
| 2. Cat and Tiger. | 12. Daisy and Buttercup. |
| 3. Dog and Wolf. | 13. Rose and Daisy. |
| 4. Cow and Sheep. | 14. Orange and Apple. |
| 5. Sheep and Goat. | 15. Orange and Lemon. |
| 6. Horse and Cow. | 16. River and Pond. |
| 7. Horse and Donkey. | 17. Field and Garden. |
| 8. Mouse and Rat. | 18. Modes of Travelling. |
| 9. Bee and Butterfly. | 19. Coal and Stone. |
| 10. Animal and Plant. | 20. Stone and Wood. |

Summary of Principles which should be taken into account in drawing up a scheme of Object or Nature Lessons:—

- (1) Variety of subjects and adaptability to ready illustration.
- (2) Employment of comparison and contrast wherever possible, e.g., wheat and barley; gold and silver.
- (3) Illustrations of cause and effect, e.g., clouds and rain; rain, springs, and rivers.
- (4) Familiar objects introducing others less familiar; e.g., cat and tiger; water, ice, and steam.
- (5) A definite plan of sequence, so that the work of each class will be preparatory to that of the next higher.
- (6) The subjects to be fairly adapted to the capacity of the children, and in most cases suited to the neighbourhood in which they live.

Generally speaking these principles will also apply in the construction of schemes for older scholars as well as infants.

Varied Occupations.—The intimate relation of these to the other subjects of school work has already been indicated. The following list of varied occupations has been issued by the Board of Education as a guide to teachers, especially in infant schools and classes, which may be divided into two sections for these lessons:—

What children between the ages of five and seven can do:—

Games with music.
Games without music (guessing games, etc.; taking messages.)

Picture Lessons.

Object lessons.

Story lessons, *e.g.*, stories from history; Grimm's Household Tales.

Recitations.

Paper folding.

Mosaic with coloured paper; use of gum.

Drawing. Brush drawing.

Plaiting paper.

Ruling simple geometrical forms.

Measuring length. Estimating length.

Weighing. Estimating weight.

Setting a table (carrying a glass of water without spilling it; Moving cups without breaking them).

Modelling in clay.

Basket work.

Cutting out patterns and shapes with scissors.

Word building.

Number pictures, with cubes, beads, &c.

B.—What children between three and five years of age can do:—

Games with music.

Games without music (guessing games, etc.);

Recitations—nursery rhymes, etc.

Picture lessons (learning to answer in complete sentences as to what they can see in a picture).

Paper folding.

Mosaic with coloured tablets.

Drawing.

Matching colours (picking out the same shades of wool from a heap of remnants).

Plaiting paper.

Working patterns with needle and worsted.

Threading beads in twos, threes, etc.

Arranging shells in twos, threes, etc.

Arranging "pictures of Lumber" with cubes.

Word building.

These lists are not intended to be exhaustive, nor is it by any means expected that all the occupations mentioned will be taught in any one school.

Considerations regulating the choice of Varied Occupations.—
In addition to its suitability to the circumstances of the children and the neighbourhood in which the school is situated, an occupation ought to satisfy the following conditions:—

- (a) It must be educative, and should especially stimulate independent effort and inventiveness. Any work that provides a real training for hand and eye is in a true sense educative, but the most valuable work of all is that which imparts a knowledge of form, colour, and the properties of materials, at the same time that it fosters manual dexterity.
- (b) It should admit of being dealt with in a progressive course.
- (c) It must be attractive to the children, and afford a welcome relief from other studies.
- (d) It must not involve the use of needlessly expensive materials.
- (e) It must be capable of being practised in an ordinary schoolroom, without risk of harm to the children or damage to furniture.
- (f) It must, in cases where the classes are as large as the Code permits, be so simple that it does not require an undue amount of individual attention. Large classes should, where possible, be subdivided for these occupations.
- (g) It should avoid a long series of preparatory exercises apart from finished results, and the finished article should be one that is attractive to a child.

Occupations fulfilling these conditions may be advantageously adopted in the lower classes of schools for older scholars. Among those specially suitable for this purpose are :—

- (1) Modelling in clay.
- (2) Modelling in cartridge or cardboard paper.
- (3) Cutting out in paper or other material.
- (4) Drawing and colouring designs (some original).
- (5) Brush drawing from the object, and from recent impressions.

Other equally useful occupations may no doubt be devised, and any occupation that is proposed, if it is likely to prove satisfactory, will be readily accepted by the Board of Education.

Specimens of Curricula.—The following specimens of approved curricula for infant schools have been worked out in full in order to give some idea as to how such schemes of instruction may be drawn up. In each case the Synopsis to be entered in the Log Book is appended.

The schemes are adapted respectively to (a) an average-sized school; (b) a large school; (c) an infant class taught in a school for older scholars; but the circumstances of schools vary so widely that no fixed plan of instruction would satisfactorily meet the requirements of many, and the examples here given are to be considered merely as suggestive.

I.—COMPLETE CURRICULUM FOR ONE YEAR IN AN AVERAGE-SIZED INFANT SCHOOL.

Average Attendance, 150. Staff—Head Mistress, Certificated Assistant Teacher, Provisionally Certificated Teacher, and Two Pupil Teachers.

Class III.—Babies.

Reading.—

- (1) Capital and small letters in any order.
- (2) To read words of two or three letters.

Writing.—

- (1) To write in sand or on slates the following capital letters: I, T, L, F, E, H, V, W, N, M, A, Z.
- (2) To copy easy small letters from blackboard, or to write them from dictation.

Number.—

- (1) To count up to 12; this is to be learnt by means of swinging, marching, etc.
- (2) Addition and subtraction of numbers up to 5, dealt with concretely.

Recitation.—Three short and easy poems or nursery rhymes with suitable action and expression.

Oral Teaching.—(1) The cat and dog compared. (2) The horse and donkey compared. (3) The sheep and cow compared. (4) A tree. (5) A bird. (6) A fish. (7) A letter and its postage. (8) Our garden and the tools we work with. (9) Making dolly's bed. (10) Laying the table. (11) Buttercups and daisies. (12) Winter.

Varied Occupations.—(1) Sand digging. (2) Matching colours. (3) Paper folding. (4) Bead threading. (5) Arranging shells in patterns. (6) Mat weaving. (7) Arranging pictures of number with cubes. (8) Froebel's Gifts, I. and II.

Drawing.—Simple patterns with vertical, horizontal, and oblique lines on chequered slates.

Needlework.—(1) Thimble drill. (2) Needle drill.

Singing.—Three kindergarten games, three action songs, and three hymns.

Drill.—

- (1) Marching and simple physical exercises.
- (2) Easy musical drill.

Class II.—Children five years old.**Reading.**—

- (1) Easy word-building; words with long vowel sounds.
- (2) To read from blackboard easy sentences relating to information lessons previously given.

Writing.—

- (1) To write any of the small letters from dictation.
- (2) To copy short and easy sentences from blackboard.

Arithmetic.—

- (1) To count and write numbers up to 20.
- (2) Addition of concrete quantities up to a total of 10.
- (3) To know twice-times table.

Recitation.—Four simple poems or nursery rhymes with suitable action and expression.

Oral Teaching.—Lessons on six familiar animals, six common objects, and six pictures.

Varied Occupations.—(1) Object and pattern making with cubes. (2) Mat weaving (three patterns). (3) String work. (4) Stick laying. (5) Wire and pea work. (6) Clay modelling. (7) Froebel's Gifts, III. and IV.

Drawing.—

- (1) Twelve simple patterns with brush-work on squared paper.
- (2) Simple free-arm drawing.

Needlework.—

- (1) Thimble, needle, and hemming drills.
- (2) To hem strips previously prepared.

Singing.—Three kindergarten games, three hymns, and four action songs.

Drill.—

- (1) Marching in correct time.
- (2) Simple physical exercises.
- (3) Easy musical drill.

Class I.—Children six years old.**Reading.**—

- (1) Word-building on the syllabic method.
- (2) Reading from primers and from blackboard.

Writing.—

- (1) All the letters from dictation.
- (2) Each child to write his own name and address.
- (3) Simple composition based on object lessons.
- (4) Transcription from blackboard and reading book.

[All the above exercises to be done with lead pencil on paper.]

Arithmetic.—

- (1) Notation and numeration up to 100.
- (2) Easy addition of tens (four or five lines) with "carrying."
- (3) Subtraction of tens (without "borrowing").
- (4) Two and three-times tables.
- (5) Simple mental questions on value of a shilling, score, dozen, week, fortnight, month, inch, foot, yard.

Recitation.—Six simple poems or nursery rhymes with suitable action and expression.

Oral Teaching.—Lessons on ten animals, ten familiar objects, and ten pictures.

Oral Composition.—

- (1) To ask questions and give answers (when required) in complete sentences.
- (2) To describe a picture or common object by means of complete sentences.

Varied Occupations.—(1) Tracing and colouring. (2) Clay modelling. (3) Embroidery. (4) Mat weaving (six patterns). (5) Doll dressing. (6) Frame making. (7) Froebel's Gifts, I. to VI.

Drawing.—

- (1) Twelve simple patterns with brush-work on squared paper.
- (2) Twelve common objects, ditto.
- (3) Free-arm drawing of easy floral and animal outlines.

Needlework.—

- (1) Hemming and knitting-pin drills.
- (2) To hem handkerchiefs or strips previously prepared.

Singing.—

- (1) Note tests in Tonic Sol-Fa (Grade I.).
- (2) Five kindergarten songs, five action songs, and three hymns.

Drill.—

- (1) Musical drill with hoops, wands, and fans.
- (2) The maypole dance.
- (3) Physical drill and marching in correct time.

Log Book Synopsis.—The foregoing syllabus may be summarised in the log book somewhat as follows:—

Reading.—Babies: To easily recognise the letters and read very short words.

Class II.: Word-building and easy sentences from blackboard.

Class I.: Word-building and Primers.

Writing.—Babies to write letters in sand or on slates.

Class II.: Any letters from dictation, and to copy easy sentences from blackboard.

Class I.: Composition and Transcription with lead pencils.

Arithmetic.—Babies to count up to 12, and add up to 5.

Class II.: To count up to 20, add up to 10, and learn twice-times table.

Class I.: To count up to 100, easy addition and subtraction, and two and three-times tables.

The teaching to be mainly concrete in all the classes, and very little slate-work to be attempted.

Recitation.—Simple poems and nursery rhymes.

Oral Teaching and Conversation Lessons.—One lesson daily, the subjects to be suited to the time of the year, and chosen from the list already approved, with such additions or alterations as occasion may require, due note of same being made in log book.

Varied Occupations.—Some of this work to be done daily. The following will be taken throughout the year:—Fröbel's Gifts, I. to IV.; matching colours, paper folding, bead threading, mat weaving, clay modelling, stick laying, wire and pea work, embroidery, doll dressing, tracing and colouring.

Games.—At least ten to be taken during the year: particulars to be kept in the Record books.

Drawing.—Babies: Simple patterns with straight lines.

Classes II. and I.: Pencil drawing, free-arm drawing, and brush-work.

Needlework.—Thimble, needle, and hemming drills. Hemming strips and handkerchiefs.

Singing.—Voice training; modulator practice; action and Kindergarten songs.

Drill.—1. Marching; 2. Simple physical exercises; 3. Musical drill.

II.—CURRICULUM FOR A LARGE INFANT SCHOOL.

Average Attendance, 320. Staff—Head Mistress, two Certificated Assistants, three Provisionally Certificated Teachers, one Supplementary Teacher, and four Pupil Teachers.

The children are arranged in 8 classes, *viz.*, I. (a) and (b), II. (a) and (b), III. (a) and (b), IV., and babies. The instruction is based almost entirely on Kindergarten principles. The two sections (a) and (b) of the three highest classes work from the same syllabus, though section (a) is slightly more advanced, and the teaching is here somewhat more detailed than in the case of section (b).

Object and Nature Lessons; (to be taught as far as possible with reference to living things or real objects, and weekly school excursions.) One new lesson to be given each week.

Babies.—Farm Life.

Class IV.—Bird and Farm Life.

Class III.—River, Ocean, Bird and Farm Life.

Class II.—Plant, Ocean, Bird and Farm Life.

Class I.—Insect Life; Flowers of the Field and Hedge-row; Common Trades.

Drawing: Babies.—Sand, Mechanical and Freehand Drawing, Tracing; the other classes take the same course, with the addition of Brush-work and Free-arm Drawing; the objects in each case being supplied mainly by nature lessons.

Stories.—Fifteen to twenty stories, based on the object lessons, are told to each class; the children being afterwards required to tell them again in their own words.

Clay Modelling.—Taken by all classes except babies. Models are furnished by the nature lessons and easy common objects seen in school.

Needlework.—Class IV.—Needle Drill; Position Drill.

Classes I. to III.—Ordinary Codal requirements.

Songs and Recitations: Babies.—8 songs and 4 short nursery rhymes, with suitable action and expression.

Classes IV. and III.—10 songs and 6 short poems.

Classes II. and I.—(a) 10 Songs, (b) Requirements of Grade I., Tonic Sol-fa, (c) Four simple poems, each containing not more than 20 lines, with expression and meaning.

Kindergarten Games.—Taken in all classes chiefly to illustrate object and nature lessons; guessing games taken once per week, children always being required to give reasons for their answers in full sentences.

Varied Occupations: Babies.—(a) Building with Froebel's Gifts, III. and IV., (b) letter, form, and tablet laying, (c) bead, paper, and bamboo threading.

Classes IV. and III.—(a) Pricking and embroidery, (b) paper folding, cutting, and twisting, (c) mat weaving, (d) building with Gifts III. and IV.

Classes II. and I.—(a) Flower making, paper cutting and designing, (b) patterns laid in simple mosaic designs, (c) basket weaving, (d) canvas work (three stages).

Drill.—Marching and simple physical exercises with musical accompaniment.

Reading: Babies.—Alphabet, capitals only, taught through kindergarten exercises. Sounds of letters taught apart from their names.

Classes I. to IV.—Reading from blackboard each day sentences based upon the object lessons. Spelling is taught through word-building, and the "look and say" method is adopted for irregular words. Each reading lesson consists of a continuous narrative built up by the children themselves.

Writing: Babies.—Letters only, from transcription.

Class IV.—Words of two or three letters from transcription, and letters from dictation.

Classes I. to III.—Transcription of reading lessons on paper with lead pencils.

Class II.—Children's names, in addition to above.

Class I.—Each child to write his full name and address, together with easy words from dictation. Copy books to be used.

Arithmetic : Babies—To count up to 20.

Class IV.—To count up to 40 and add concrete units to a total not exceeding 5.

Class III.—To count up to 60, and add concrete units to a total not exceeding 10. Twice-times table.

Classes II. and I.—To count up to 100, and add concrete units and tens; very easy subtraction by means of concrete objects. Tables up to four times twelve. Simple questions relating to the foot, yard, day, week, pound, ounce, dozen, score, etc., for totals not exceeding 20. Except in the highest division of the school, all the arithmetical exercises are mental.



Log Book Synopsis.—The syllabus may be briefly summarised as follows.

Object and Nature Lessons.—One to be taken each week, and full notes to be kept in the Teachers' Record Books.

Drawing.—Tracing; Sand, Mechanical, and Freehand Drawing, for the younger scholars; the higher classes in addition will take simple brush-work and free-arm drawing.

Stories.—Fifteen to twenty for each class, based on object and nature lessons.

Varied Occupations.—A selection according to schemes set forth in the Record Books. Clay modelling to be taken by all classes except the lowest.

Songs, Recitations, and Games.—According to details given in complete scheme of instruction.

Needlework.—As prescribed by the Code.

Drill.—Physical exercises, marching, and musical drill for all classes.

Reading.—Babies will learn the capital letters only. Other classes will follow a graduated course based on oral composition dealing with nature lessons. Spelling to be taught through word building; irregular words by the "Look and Say" method. All reading lessons to consist of continuous narratives printed on blackboard.

Writing.—Transcription, dictation, and copy-books, according to graduated scheme.

Arithmetic.—Counting; easy addition and subtraction through concrete objects. Easy multiplication tables.

III.—CURRICULUM FOR INFANT CLASS TAUGHT WITH OLDER SCHOLARS IN A SMALL COUNTRY SCHOOL.

Average Attendance, 45. Staff.—Supplementary Teacher and Pupil Teacher. The Headmaster also spends half-an-hour each day in Infants' Classroom, while the ordinary teacher conducts a reading lesson with older scholars in the schoolroom.

Class I. (children six years old).—Easy reading lessons, chiefly from Primers, with short stories based on pictures, the children building up the story by answering in complete sentences questions asked by the teacher. Formation of capital letters, easy transcription, and copy-books written with lead pencils. Numbers up to 20, with easy addition and subtraction.

Class II. (children under six).—Formation of letters and figures from their elements. Picture and reading lessons from sheets. Arithmetic introduced by games with beads, cubes, etc.

Conversation Lessons given collectively on objects seen daily by the children in their walks.

Needlework and Drawing taught collectively.

Varied Occupations.—Paper folding and plaiting, bead threading, stick laying, building with cubes, embroidery.

Singing according to Grade I. of Tonic Sol-fa requirements. Five action songs.

Recitation.—Ten short poems or nursery rhymes, illustrated by pictures.

Physical Exercises and marching, taken with older scholars.

The above scheme should be fully copied in the log book.

Curriculum for Older Scholars.—The education given in every Public Elementary School should be based on a graduated course of instruction, suitable to the age and capacity of the scholars, in the following subjects:—

- (1) *The English Language*, including speaking with correct pronunciation, reading aloud with intelligence and clear enunciation, writing, oral and written composition, and grammar. At each stage recitation of pieces of literary merit should be practised.

- (2) *Arithmetic*, including practice in oral and written descriptions of the processes used.
- (3) *Knowledge of the common phenomena of the external world*, with special reference to the formation of a habit of intelligent and accurate observation, and to the application of that habit—in conjunction with simple forms of experiment—in the daily life and surroundings of the scholars.
- (4) *Geography*, advancing from first notions to an outline knowledge of the chief physical features of the earth, and specially of the British Isles, and the British Dominions beyond the seas.
- (5) *History*, comprising a general knowledge of the great persons and events in English History, and of the growth of the British Empire.
- (6) *Drawing*, including drawing from actual objects, memory drawing and brush drawing; together with other simple hand and eye training.
- (7) *Singing*, which should, as a rule, be taught by note and should include practice in proper breathing.
- (8) *Physical Exercises*, according to an approved system.
- (9) *Plain Needlework*, for girls, including in the later years lessons in cutting out.

It is desirable that as far as possible subjects (1) to (6) should be taught in relation to each other, and with reference to the surroundings of the children. The instruction should afford frequent opportunities for the practice of oral and written composition.

In planning and carrying out courses of instruction comprising these subjects, the greatest freedom possible is now allowed by the Code to teachers and school managers. It is not necessary that all of them should be taught to every class in the school; and one or more may be entirely omitted in any school which can satisfy H.M. Inspector and the Board of Education that there is good reason for such omission.

But in every school the rudimentary instruction admits of little variety, for the younger children must learn to read and to understand what they read, to express their own meaning correctly whether in speech or writing, and to acquire some mastery of the elementary processes of Arithmetic. In all schools, also, boys should learn to draw and girls to sew, and both should learn something of the history and geography of their own

country, and of the great Empire of which it is the head, and be taught to observe and to acquire for themselves some knowledge of the facts of nature. In this last detail of the course of instruction there will from the first be some variety; for the 'common things' that provide experience for a town child are necessarily different from those which a child can observe in the country; and as the children grow older greater diversity will be necessary.

In addition to those already mentioned, one or more of the following subjects may be taken when the circumstances of the school, in the opinion of the Inspector, make it desirable:—Algebra, Euclid, Mensuration, Mechanics, Chemistry, Physics, Elementary Physics and Chemistry (combined), Animal Physiology, Hygiene, Botany, Principles of Agriculture, Horticulture, Navigation, Latin, French, Welsh (for scholars in schools in Wales), German, Book-keeping, Shorthand, according to some system recognised by the Board of Education; Domestic Economy, or Domestic Science; Drawing (for *girls*), Needlework (for *boys*)—the former of these two subjects having already been mentioned as forming part of the general course of instruction for *boys*, and the latter for *girls*; Cookery, Laundry Work, Dairy Work, and Household Management (for *girls*); Cottage Gardening and Manual Instruction (for *boys*); Cookery, for boys over 12 years of age, in seaport towns.

One or more of these subjects may be taught either to classes or to individual children; but the list is by no means intended to be exhaustive. Any other subject may be included in the course of instruction, provided that a graduated scheme for teaching it is submitted to and approved by the Inspector.

Correlation of Lessons.—It was wisely stated by Plato in his *Republic* that "*when all studies reach the point of intercommunion and connection with each other, and come to be considered in their mutual affinities, then, but not till then, will the pursuit of them have value; otherwise there is no profit in them,*" and this dictum should be carefully observed in the construction of curricula.

By their very nature many subjects of instruction are closely related. All those which are classed by the Code under the general heading of English may be very conveniently treated in connection with each other; literature, history, and geography have many connecting links; physical geography, again, is intimately associated with science, and science with arithmetic, algebra, geometry, and drawing; while drawing is necessarily connected with hand and eye training. For practical purposes, however, it will generally be

found convenient to treat the mathematical subjects (especially arithmetic), needlework, and drawing, on independent bases; and this will be almost imperative when the children are re-classified for these subjects, as is frequently the case. The remaining subjects may be correlated with very little practical difficulty, and hence it is possible to arrange for lessons in history, geography, reading, recitation, and composition to bear on each other, instead of teaching them as entirely distinct subjects of instruction. Composition, again, may be frequently based on object lessons; while spelling will be best taught incidentally through all the other lessons, coupled with frequent transcription. In co-ordinating the schemes in history, geography, and recitation, efforts should be put forth to awaken the sympathies of the children, and to set before them stories of noble characters and incidents which will tend to arouse a patriotic feeling of regard for their country and its position in the world; and while they should whenever possible be made acquainted with the leading historical incidents which have taken place in their own neighbourhood, and with its special geographical features, their interest should also be excited in the colonial and foreign possessions of the British Crown. No minimum is now prescribed with respect to the amount of recitation in any class; each teacher may take what he considers sufficient with due regard to the circumstances of the school and the construction of the curriculum in other subjects.

SUGGESTED SCHEMES FOR CO-ORDINATING ENGLISH, GEOGRAPHY, HISTORY, AND RECITATION.

These schemes are adapted mainly to the needs of classes above the middle of the school. For lower classes similar plans, though considerably simplified, may be followed.

(a) Class III. (corresponding with Standard III.).

Geography.—Physical and political geography of England and Wales, with special reference to the county in which the school is situated, and to the Ordnance Survey map of the district.

History.—England before the Norman Conquest, comprising:

- (a) The Ancient Britons and the condition of the country before the Roman Conquest; Druidical remains, etc.

- (b) The Roman Conquest and its results.
- (c) The Introduction of Christianity.
- (d) The Coming of the English ; its causes and results.
- (e) The Life and Work of Alfred the Great.

Recitation.—Cowper's "Boadicea"; Henley's "England"; Browning's "Home Thoughts from Abroad"; Barton's "Caractacus."

Reading will supplement and illustrate the above lessons by means of geographical and historical reading books.

Composition, Transcription, and occasionally Dictation will be chiefly based on the history and geography lessons, varied with subjects previously dealt with in object lessons.

Grammar, Spelling, and Word-Building will be taught in connection with the Composition and Reading lessons.

(b) Class II. (corresponding with Standard IV.).

Geography.—A general revision of England and Wales, supplemented by the physical and political geography of Scotland and Ireland. An outline of the geography of Canada or of Australia and New Zealand, may also be added.

History.—England under the Norman and Plantagenet Kings. A fairly complete idea of the social condition and chief events of the period may be obtained by a series of lessons on the lives of prominent men, of which the following may be taken as suggestive :—

Brief Accounts of

Events or Facts Illustrated.

- | | |
|--|---|
| 1. William the Conqueror. | The Norman Conquest and Feudal System. |
| 2. Hereward the Wake. | The Last of the Saxons. |
| 3. Thomas à Becket. | Growth of the power of the Church. |
| 4. Richard Cœur de Lion. | The Crusades. |
| 5. John. | Magna Carta. |
| 6. Simon De Montfort. | Origin of Parliament. |
| 7. Edward I. | Conquest of Wales, and English relations with Scotland. |
| 8. Sir William Wallace and Robert Bruce. | Scottish affairs. |
| 9. The Black Prince. | Wars with France. |
| 10. John Wycliffe. | Beginning of the Reformation. |
| 11. Geoffrey Chaucer. | Growth of the English Language. |
| 12. William Caxton. | Invention of Printing. |

These biographies and events may afterwards be utilised for composition exercises, and object lessons will furnish other subjects.

Recitation.—"Hubert and Arthur" from Shakespeare's *King John*; "Henry V. before Harfleur"; Drayton's "Battle of Agincourt"; Longfellow's "Norman Baron"; Palgrave's "Battle of Evesham." A few simpler pieces such as "Bruce and the Spider" (Cook), and "The Soldier's Dream" (Campbell), might also be added.

Reading and the remaining subjects will be treated as in the preceding course. School editions of such books as Kingsley's "Hereward the Wake" and Scott's "Ivanhoe" and "The Talisman," are also available as supplementary readers.

(c) Class I. (corresponding with Standards V., VI., and VII. when taught together).

Geography.—Europe, physically, politically, and commercially, with reference to current events whenever necessary.

History.—Either (i.) a course of thirty lessons on famous events and characters of European History; or (ii.) England under the Tudors and Stuarts (in continuation of the previous courses).

The difficulty of at present obtaining suitable school reading books dealing with the former of these courses will probably give preference to the latter.

As in the preceding course, the lessons may be rendered most interesting by being centred round prominent personages and events, of which the following may be taken as typical:—

(a) *Biographies.*—

Perkin Warbeck.
Columbus.
Wolsey.
More.
Lady Jane Grey.
Mary, Queen of Scots.
Sir Philip Sidney.

Raleigh.
Drake.
Shakespeare.
Francis Bacon.
Cromwell.
Milton.
Marlborough.

(b) Epochs or Events :—

Results of the Wars of the Roses.

The Reformation.

The Armada—its causes, incidents, and results.

The Poor Laws.

Rise of English Manufactures, and consequent increase in Commerce.

The struggles with Spain and Holland.

Maritime Discovery and Exploration.

The Revival of Learning.

Famous Authors and their Works.

All these will serve to provide suitable topics for Composition lessons.

Recitation.—"Wolsey and Cromwell" from Shakespeare's "Henry VIII. "; Macaulay's "Armada "; Tennyson's "Revenge "; Palgrave's "Joan of Arc "; "Flodden Field" from Scott's "Marmion."

Reading.—Kingsley's "Westward Ho!" and Scott's "Kenilworth" may both be obtained in editions suitable for school reading, and are well adapted for supplementing and illustrating the other lessons. To these will be added the ordinary literary, historical, and geographical Reading Books.

Where children remain in the highest class for more than one year, an alternative course to the one just sketched out may be drawn up on the following lines :—

Geography.—The chief British Colonies and Dependencies, together with the United States, treated physically, politically, and commercially.

History.—England during the eighteenth or nineteenth century, with sketches of the lives of prominent statesmen, inventors, explorers, and writers; and brief accounts of the history of each division of the British Empire.

Recitation.—Tennyson's "Charge of the Light Brigade," and "Ode on The Death of the Duke of Wellington." Campbell's "Battle of the Baltic," and "Ye Mariners of England"; Henley's "England"; Swinburne's Concluding Verses of "The Armada"; Kipling's "Flag of England."

Reading.—Mrs. Brassey's "Voyage in The Sunbeam"; Froude's "Oceana"; Macaulay's "Warren Hastings" and "Clive" (connected with geography of India); School editions of Dickens' "Pickwick Papers" and "Old Curiosity Shop"; selections from Kipling, given in "The Kipling Reader"; Arnold's "In the World of Books," etc.

In small schools, where the three highest classes are taught together, probably the last of the foregoing schemes will be found most serviceable and instructive, though alterations and abridgments may be necessary in order to suit special circumstances.

(d) **English Language.**—The following scheme is an attempt to trace the development of the English Language concurrently with the development of the English race. With slight gradations and variations of subject matter, it may be adapted to any class in the upper half of the school; and may thus be substituted for any of the schemes just given.

Geography.—The British Isles in detail; together with outlines of the Geography of India, Canada, Australia, and the United States.

Reading.—One geographical reader, covering the above course; one historical reader, containing a general outline of the history of England; and a literary reader, containing extracts from famous poets and prose writers from the sixteenth to the nineteenth century.

Recitation.—Selections from Longfellow, Wordsworth, and Tennyson, as leading poets of the nineteenth century. To these may be added a few extracts from Shakespeare, Gray, or Scott.

History and Language.—The lessons in these subjects may run parallel to each other in the following way:—

History.**Language.**

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|--|---|
| <p>(a) Saxon England.
Alfred the Great.
Danish Invasions.
Historical evidence as shown
in some place-names.</p> <p>(b) The Norman Conquest and
its results.
The Feudal System.
Hereward the Wake.
Chaucer.
[Selections from Kingsley's
<i>Hereward the Wake</i>, Lytton's
<i>Harold</i>, Scott's <i>Ivanhoe</i>, etc.,
may be read here.]</p> <p>(c) The Introduction of Printing
and its results.
The Revival of Learning.</p> <p>(d) The Reign of Elizabeth.
Life of Shakespeare.
[Selections from Scott's
<i>Kenilworth</i>, or Lamb's <i>Tales
from Shakespeare</i>, could be
read in connection with this
stage of the work.]</p> <p>(e) Importance and use of
colonies.
Biographies of six famous
explorers and empire-
builders.</p> <p>(f) Inventions and discoveries
of the nineteenth century.
National Institutions—Par-
liament, the Press, Trial
by Jury, the Franchise, Lo-
cal Government, etc.</p> | <p>(a) Words of Anglo-Saxon origin
and how to recognise them.
Spelling and Word-build-
ing: Old English Prefixes
and Suffixes.</p> <p>(b) Enlargement of vocabulary
by the introduction of
Norman-French. Words
relating to War, Feudalism,
Hunting, Law, the Church,
Cookery, etc.</p> <p>(c) Additions from Latin and
other sources. Word-build-
ing. Common Latin Pre-
fixes and Suffixes.</p> <p>(d) A brief sketch of the develop-
ment of Elizabethan litera-
ture. Outlines of the plots
of six of the more impor-
tant plays of Shakespeare.</p> <p>(e) Enlargement of vocabulary
by the addition of words
derived from foreign sour-
ces as a result of travel
and commerce.</p> <p>(f) Words added from Greek and
other languages in connec-
tion with science and in-
vention. Outline of English
literature during the 18th
and 19th centuries.</p> |
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For the practical working out of the above scheme, Mr. Edward Arnold's *Steps to Literature* will be found admirably adapted, as these books contain extracts from the best writers, illustrative of both History and Travel. The pictures in the books are all intended to introduce the pupil to the greatest masters of European art, just as the selections of prose and verse introduce him to the greatest names in literature. Collateral with the *Steps to Literature* is a specially useful series of geographical reading books issued by the same publisher, *The Home and Abroad Readers*, in which the Mother Country and the British Empire are kept well before the pupil throughout the whole course.

Composition, based on the above lessons, and on object lessons.

Spelling taught through word-building and composition.

(e) **Grammar and Recitation**.—Where Grammar is taught mainly with regard to its bearing on Composition, and without direct reference to the other subjects of the curriculum, the following scheme of lessons may be suggestive.

Class I.—(Standards V., VI., and VII.)

- (1) Careful study of the poetry for the year.
- (2) Simple paraphrasing and analysis, illustrated chiefly from the poetry.
- (3) Meaning and use of common prefixes and suffixes.
- (4) Functions of the parts of speech; exercises on supplying appropriate adjectives and adverbs, and on variation and expansion of phrases.
- (5) Correction of common errors in speaking and writing, Punctuation.
- (6) Exercises in finding (a) synonyms (b) antonyms.
- (7) Lessons in abridging documents and letters.
- (8) Biographies of some leading English novelists, with extracts from their best works, as given in such a book as *Tellers of Tales* (Edward Arnold).

Class II.—(Standard IV.)

- (1) Careful study of the poetry for the year.
- (2) Analysis of simple sentences.
- (3) Functions of the parts of speech.
- (4) Building up sentences by speech or writing, and substituting phrases or clauses for single words, and *vice versa*.
- (5) Correction of common errors in speaking and writing. Punctuation.
- (6) Conversion from direct to oblique narration, and *vice versa*.

Class III.—(Standard III.)

- (1) Study of the poetry for the year.
- (2) Nature and use of sentences, and functions of words used in simple sentences.
- (3) Correction of common errors in speaking and writing.
- (4) Sentence building and easy composition, both oral and written.

Class IV.—(Standards I. and II.)

- (1) Study of the poetry for the year.
- (2) Use of nouns, pronouns, and verbs.
- (3) Oral composition ; answering questions about familiar scenes and objects in complete sentences.
- (4) Building up sentences from words given.

Recitation.—No limit is now prescribed with respect to the number of lines which any class shall learn, and opportunity should therefore be taken to introduce the pupils to a judicious selection of the finest gems of English verse, care being taken that in all cases the passages chosen are adapted to the capacities of the learners. An exceptionally good selection of such passages will be found in *The Laureate Poetry Books* (Edward Arnold), and also in *Poems for the Schoolroom and the Scholar* in the "Masterpiece Library of Penny Poets" (W. T. Stead).

Occasionally it will be found interesting for the pupils to learn a few stanzas of poetry bearing on some characteristic feature or historical event connected with various places mentioned in the

geography lessons. The following examples will serve to show how this may be done, though the list might be increased indefinitely. It is not, of course, intended that the entire poem should be learned in every case.

England	...	"England"	Henley.
		Selections from "The Armada" ...	Macaulay.
		Concluding verses of "The Armada"	Swinburne.
Wales	...	"The Bard"	Gray.
Scotland	...	"O Caledonia, stern and wild" (<i>Lay of the Last Minstrel</i>)	Scott.
Ireland	...	"Sweet Vale of Avoca"	T. Moore.
Belgium	...	"The Eve of Waterloo" (<i>Childe Harold</i>)	Byron.
Russia	...	"The Charge of the Light Brigade"	Tennyson.
Switzerland	...	"Excelsior"	Longfellow.
Spain	...	"The Burial of Sir John Moore" ...	Wolfe.
Italy	...	Selections from "Lays of Ancient Rome"	Macaulay.
Greece	...	"The Isles of Greece" (<i>Don Juan</i>)	Byron.
Canada	...	"The Canadian Boat Song" ...	T. Moore.
Africa	...	"The Slave's Dream"	Longfellow.

The following advantages may be claimed for the above plan:—

- (a) Variety and interest are introduced, so that the pupils do not become wearied by rehearsing the same passage during a whole year.
- (b) A love of good poetry is likely to be engendered.
- (c) Recitation, Geography, and History are made mutually helpful.

Some teachers prefer to limit the recitation of all the classes to the works of two or three poets in each year. Tennyson, Longfellow, and Scott are particularly well adapted to this purpose.

Whichever of the foregoing plans is adopted, it will be found advantageous occasionally to select school songs by the same poets. Tennyson's "Sweet and Low" or "Crossing the Bar," Longfellow's "Village Blacksmith" or "Excelsior," and Moore's "Canadian Boat

Song" or "The Meeting of the Waters" (Sweet Vale of Avoca), are all very suitable as school songs. The exercises in copy-setting may also occasionally consist of beautiful quotations from any of the works of the same poets, and Composition lessons may sometimes be based upon the subjects which have been dealt with.

(f) **Geography.**—For older scholars, the most serviceable courses in this subject have already been indicated. The objects of the earlier lessons in geography should be to ensure that the scholars may form clear and distinct notions of such natural phenomena as may come within range of their observation; and therefore this early instruction may be most advantageously given in the form of Object Lessons. These should be followed by a series of lessons on local geography, which may be utilised for the purpose of illustrating the ordinary geographical definitions, and the physical geography of hills and rivers. On this foundation may be built a further course leading from plans and maps to a general study of the globe, with reference to its zones, continents, and oceans; thus preparing the way for a beneficial study of the geography of various countries in the higher classes.

The following scheme is intended to suggest the lines on which the lessons may be drawn up:—

- (1) The apparent daily course of the sun.
- (2) A spring day, a summer day, an autumn day, a winter day, and characteristics of each.
- (3) Comparison of the seasons, according to (a) length of daylight; (b) temperature; (c) position of sun at noon.
- (4) The sky in the daytime; clouds, their appearances and uses.
- (5) The sky at night: the moon; the Great Bear; the Pole Star.
- (6) How to fix position; sun at sunrise, noon, and sunset; pole star at night; the mariner's compass; direction in classroom; use of sign-posts and vanes; direction of various roads in the school district; plans of school and surroundings.
- (7) A walk round the neighbourhood and the lessons to be learnt from it; direction of principal places; plains and tablelands; map of district; measurement of distance by scale.
- (8) Hills illustrated by models and with reference to the neighbourhood; base, summit, peak or crest, watershed; lakes, rivers, valleys.
- (9) Mountains illustrated by models; ranges and groups shown on map of England. Influence of mountains and hills on climate, and other circumstances by which it is modified.

- (10) Very high mountains; snow-line, glaciers, and avalanches, illustrated by pictures and reference to map of Europe or India.
- (11) A rainy day and the lessons to be learnt from it. Work of rivers.
- (12) Estuaries and deltas; seaports, harbours, docks, canals, and light-houses; ships and lifeboats.
- (13) The sea coast; capes and headlands; bays, gulfs, islands.
- (14) Oceans and seas; names and positions of the most important. Proportion of land and water on earth's surface.
- (15) The Globe; poles, equator, tropics, zones. The five continents; comparison of polar and equatorial regions.
- (16) Interchange of productions. The world's great markets. Fields for Emigration.

As an alternative to the foregoing, a workable scheme might be drawn up consisting of about thirty lessons, twelve of which deal with common objects, twelve with geographical and six with historical subjects; the lessons being connected as far as practicable.

(g) History.—(i.) According to the late Herbert Spencer, "That which constitutes History, properly so called, is in great part omitted from works on the subject. Only of late years have historians commenced giving us, in any considerable quantity, the truly valuable information. As in past ages, the king was everything and the people nothing; so, in past histories the doings of the king fill the entire picture, to which the national life forms but an obscure background. While only now, when the welfare of nations rather than of rulers is becoming the dominant idea, are historians beginning to occupy themselves with the phenomena of social progress. The thing it really concerns us to know is the natural history of society. We want all facts which help us to understand how a nation has grown and organised itself."

A series of lessons on this "Natural History of Society," as advocated by Mr. Spencer, might be profitably substituted for one of the schemes already sketched out for the highest classes, and would naturally lead to the subject of the "Life and Duties of a Citizen." This has been called the Evolutionary Treatment of History, and is well calculated to make the pupils take an interest in the facts of social and political life around them, to develop a spirit of inquiry, and to impress upon them their future rights and responsibilities when they become citizens. The lessons might deal with the following subjects:—

- (1) The People: their Duties and Privileges; Elections.
- (2) Government: King, Lords and Commons; Functions of the Houses of Parliament; the Cabinet; Prerogatives of the Crown.
- (3) How Laws are made and Administered: Policemen, Magistrates, Solicitors, Barristers, Judges, and Juries.
- (4) Local Government: Parish, Borough and County Councils, Charity Commissioners, Asylum Boards.
- (5) Taxation: Direct and Indirect.
- (6) Commerce and Trade: Public Companies; Labour and Capital; Work and Wages; Trade Unions; Strikes.
- (7) Means of Communication and Cost of Travelling.
- (8) Education: School Councils, Colleges, Universities.
- (9) The Church and its Organisation.
- (10) The Press and its Influence.
- (11) The Army and Navy: Peace and War; Arbitration.
- (12) The Use and Importance of Colonies; Emigration; Federation.
- (13) The Post Office and its Work.
- (14) Thrift: Savings Banks, Clubs and Friendly Societies.
- (15) Architecture, Sculpture, and Painting.

(ii.) It has already been stated that a suitable historical course to accompany the geography of Europe might consist of about thirty lessons on famous events and characters of European History. Such a course would be best suited to pupils who already possess a general knowledge of the history of their own country. Taking the map of Europe as at present constituted, the scheme of lessons should be drawn up so as to show broadly how the chief countries had their rise, and how in past times they have been related to each other. The lessons need not follow a strictly chronological order, but should be so arranged that Geography and History may assist each other; for example, the character of a nation and the course of its history may generally be shown to be the results of its geographical situation, as in the case of Greece or Holland. The following list of topics for lessons will serve to indicate the line of teaching which may be followed:—

- (1) Greece: The Spartans; the Laws of Solon; Leonidas and the Battle of Thermopylæ; Aristides and Pericles; Ostracism.
- (2) Rome: The Plebs, Praetors, Tribunes, Consuls; the Gracchi; the Punic Wars; Regulus, Hannibal, Cato, Cæsar, Cicero.
- (3) The Empire of Charlemagne: Constantine, Charles Martel, Pepin the Short, Charlemagne, Roland and Oliver.

- (4) The Huns and their Conquerors: Siegfried, Attila, Otto the Great.
- (5) The Age of Chivalry: the Knight, Squire, and Page; the Tournament; Trial by Combat.
- (6) The Crusaders: Peter the Hermit; Godfrey de Bouillon; Richard Cœur de Lion; Results of the Crusades.
- (7) Early France: The Hundred Years' War; Bertrand du Guesclin; Joan of Arc.
- (8) Switzerland: The Forest Cantons; William Tell; Morgarten; Sempach: Arnold von Winkelried.
- (9) Italy: The City Republics; Venice; Florence; Dante; Petrarch; Savonarola; Michael Angelo; Raphael.
- (10) Spain: Ferdinand and Isabella; the Conquest of Granada; Columbus; Vespucci; Magellan.
- (11) The Netherlands: William of Orange; Philip II.; Alva; the Siege of Leyden.
- (12) Germany and France: The Thirty Years' War, Tilley and Wallenstein, Gustaf Adolf, Cardinal Richlieu; the German Confederations; the Franco-German War.
- (13) The Rise of Russia; Vladimir; Ivan the Terrible; Peter the Great.
- (14) The French Revolution: Bonaparte; the crossing of the Alps; Austerlitz; Moscow, and Leipsic; the Berlin Decrees; the Peninsular War; Waterloo.
- (15) The Crimean War; the Eastern Question.

(h) **Arithmetic.**—The following syllabus is intended to cover the work of the various classes for nine months. Allowing for two months' holiday, this requires the curriculum to be divided into seven fairly equal portions, thus leaving three months of the year for purposes of general revision. In constructing any curriculum in arithmetic, it is important to bear in mind that the upper classes of the school (corresponding with Standards IV., V., VI., and VII.) must receive instruction in the principles of the Metric System, and the advantages to be gained from uniformity in the method of forming multiples and sub-multiples of the unit; and therefore, as a preparation for this, it will be useful to give elementary lessons on the notation of decimal fractions to classes about the middle of the school (corresponding with Standards II. and III.). In every class, also, exercises in Mental Arithmetic should be given on the work prescribed for each month, as well as simple calculations on prices, buying and selling, etc., adapted to the requirements of daily life.

Month	Class 1 or Standard VII.	Class 2 or Standard VI.	Class 3 or Standard V.	Class 4 or Standard IV.
1st	Simplification of Fractions. Simple Proportion.	Easy Vulgar Fractions. Simple Proportion.	Simple Practice (shillings and pence only).	Tots. Easy Compound Multiplication of Money.
2nd	As above, with Simple Interest. Tots.	Harder Fractions. Proportion. Tots.	Simple Practice (any sum of money).	Reduction of Money. Compound Multiplication by Factors
3rd	Interest, Percentages, and Averages. Metric System.	Fractions. Addition and Subtraction of Decimals. Metric System.	Easy Compound Practice. Addition and Subtraction of Decimals. Metric System.	More difficult Multiplication of Money. Easy Division of Money. Problems on Money.
4th	Revision of previous work, and easy Stocks.	Fractions. Multiplication and Division of Decimals. Metric System.	Practice complete. Easy Bills. Tots. Metric System.	Multiplication and Division of Money. Reduction of Weight. Metric System.
5th	More difficult Stocks. Mensuration of Surfaces.	Vulgar and Decimal Fractions. Problems in Proportion. Easy Interest.	Practice and Bills. Tots. Measures and Multiples.	Problems involving Multiplication and Division of Money. Reduction of Weight and Time.
6th	Problems on Averages and Stocks. Mensuration of Solids.	Fractions generally. Proportion. Interest and Amount. Mensuration of Surfaces.	Problems in Practice and Bills. Addition and Subtraction of Fractions.	Full course of Multiplication, Division, and Reduction of Weight, Time, and Length (yards, feet, and inches).
7th	Averages, Per- centages and Stocks. Mensuration. Long Tots.	Fractions, Interest Proportion; and Mensuration.	Fractions, Practice, and Simple Proportion.	Problems involving Weights and Measures Metric System. Tots.

Class 5 or Standard III	Class 6 or Standard II	Class 7 or Standard I.
Simple Multiplication. Short Division and Division by Factors.	Numeration to 1000. Place value. Simple Addition and Subtraction. Multiplication Tables.	Write numbers up to 20, and read up to 100. Add numbers up to 50. No answer to exceed 150. Subtract numbers not exceeding 9.
Multiplication. Division by Factors. Easy Long Division.	Numeration to 10,000. Place value. Addition and Subtraction Problems. Multiplication Tables.	Write numbers up to 100, and read up to 300. Addition sums of 3 lines. No answer to exceed 200. Subtract a number from any other, less than 100.
Problems on Multiplication and Division. Long Division completed.	Addition and Subtraction of numbers up to 100,000. Multiplication by numbers less than 12.	Write numbers up to 200, and read up to 500. Addition sums of 4 lines. Answers not to exceed 300. Subtraction of numbers less than 100.
Long Division. Compound Addition of Shillings and Pence.	Addition and Subtraction Problems. Multiplication by Tens and Hundreds. Pence Table to 72 pence.	Write numbers up to 500, and read up to 1000. Special attention paid to Place value. Addition sums of 5 lines. Subtraction from any number less than 500.
Long Division. Compound Addition. Place value and Addition of Decimals.	Place value. Addition of Decimals. Multiplication complete. Easy Short Division. Pence Table completed.	Write numbers up to 700, and read up to 2000. Place value. Addition sums of 5 lines, with answers less than 1000. Subtraction from any number less than 500. Multiplication Tables to 4 times 12.
Long Division. Compound Addition and Subtraction. Easy Metric Arithmetic.	Full Course of Multiplication and Short Division. Addition of Decimals. Change of values according to position of Decimal Point.	Write numbers up to 900, and read up to 3000. Place value. Addition sums of 6 lines, with answers less than 2000. Subtraction from any number less than 1000. Subtrahend to consist of Units or Tens and minuend of Hundreds.
Reduction of Money. Compound Addition and Subtraction. Division. Metric System.	Above Course complete with Problems.	Write numbers up to 1000 and read up to 5000. Place value. Simple Addition and Subtraction complete. Multiplication Tables to 6 times 12.

As an alternative to the foregoing curriculum in Arithmetic, what is sometimes known as "Scheme B" may be adopted. In the higher classes this does not differ very materially for that just given, but in the earlier stages important variations are introduced. Easy exercises on the four simple rules are set during the first year of work in the upper school, but the numbers used do not exceed 99. The pupils are thus set free from dealing with large numbers which are beyond their comprehension, and are thoroughly familiarised with all the early processes which lie at the foundation of Arithmetic; moreover, as the numbers are small, they readily admit of *concrete* treatment, and at the same time are well adapted to mental work. Easy examples involving money are taught *concurrently* with the simple rules, no amount exceeding £10, and an extension of the plan involves simple exercises on weights and measures, so that the children are enabled to apply their knowledge to the ordinary calculations of daily life as soon as they are ready for them.

(i) **Drawing.**—This subject must form a part of every course of instruction for boys, and should also form part of the curriculum in girls' schools unless the Board of Education is satisfied that there is good reason for its omission. The following suggested scheme is an attempt to introduce greater variety and interest into the work by combining ordinary Freehand Drawing in a progressive course with Mechanical Drawing and Manual Exercises. It will generally be found sufficient however, if the drawing of the girls is limited to the requirements in Freehand.

Class V. (Standard I.)

(a) **Mechanical Drawing.**—Simple right-lined forms drawn with ruler on paper. Pattern work on squared paper. Block letters formed with right lines.

(b) **Freehand.**—The foregoing, together with easy curves involving common objects, *e.g.*, a boat, house, bottle, box, etc. Free-arm drawing, with chalk, of the exercises previously worked on paper.

(c) **Manual Exercises.**—Paper cutting and mounting of exercises previously drawn. Colouring with crayons.

Class IV. (Standard II.)

(a) **Mechanical Drawing.**—More advanced exercises in right-lined figures drawn with ruler. Pattern-work on squared paper introducing curves. Block letters, both from copies and from memory.

(b) **Freehand.**—The foregoing with simple curves. Natural leaf forms and simple curved objects from actual specimens as well as from copies. Free-arm drawing of the same exercises.

(c) **Manual Exercises.**—Paper cutting and mounting of exercises previously drawn. Colouring with crayons.

Class III. (Standard III.)

(a) **Mechanical Drawing.**—Simple geometrical forms with ruler; e.g., triangle, octagon, hexagon, etc. Decorative pattern work formed by combinations of such forms.

(b) **Freehand.**—Simple exercises from the flat. The work of the previous class, gradually increasing in difficulty, continued both on paper and blackboard. Easy exercises in drawing from memory.

(c) **Manual Exercises.**—Work already done tinted with crayon or coloured chalk. Mounting of copies drawn on coloured paper.

Class II. (Standard IV.)

(a) **Mechanical Drawing.**—Construction of simple scales, and drawing to scale on both plain and squared paper.

(b) **Freehand.**—Drawing of ornament from the flat and from actual objects, both on paper and blackboard. Simple exercises in drawing from memory.

(c) **Manual Exercises.**—Colour work continued from the previous class. Introductory exercises in brush-drawing, involving simple patterns and easy objects on both squared and plain paper.

Class I.—(Standards V., VI., and VII.)

(a) **Mechanical Drawing.**—Scale drawing continued; easy geometrical exercises leading to decorative work with ruler and compasses. Model drawing of cube, cylinder, and cone, with easy common objects based on these forms.

(b) **Freehand.**—More difficult ornamental and natural forms, both on paper and blackboard. Easy exercises in recreative drawing and design. Drawing of objects and simple patterns from memory.

(c) **Manual Exercises.**—Brush-drawing, gradually advancing in difficulty. Cardboard modelling, leading from the simpler geometrical exercises and model drawing previously done.

(j) **Syllabus in Spelling and Word Building for one Year.**—(The remarks on the division of the Arithmetic Scheme into seven portions apply also to this.)

MONTH.	FOR A JUNIOR CLASS.	FOR A SENIOR CLASS.
1st	Words ending in <i>-able, -er, -ing</i> . Rule for final <i>-e</i> . Transcription and sentence making.	Words ending in <i>-ar, -er, -or, -our, -us, ous</i> . Prefixes <i>dis-, mis-, per-</i> . Words of similar sound.
2nd	Words ending in <i>-en, -ed, -ing</i> . Rhyming words. Transcription and sentence making.	Endings <i>-ing, -ed, -sion, -tion, -ous, -or, -our, -er</i> . Prefixes <i>for-, fore-</i> . Silent letters and words of similar sound.
3rd	Words ending in <i>-ar, -ful, -fully</i> . Rhyming words. Transcription and sentence making.	Use of <i>-ei</i> and <i>-ie</i> . Endings <i>-ent, -ant, -ence, -ance</i> . Definitions of <i>consonant, vowel, syllable, diphthong</i> .
4th	Words ending in <i>-ness, -ing</i> . Transcription and sentence making and completing. Revision of preceding work.	Plural of words ending in <i>-f</i> . Endings <i>-ence, -ance, -able, -ille, -cious, -tious, -eer, -ear, -ere</i> . Use of <i>here, hear, there, their, where, were</i> .
5th	Words ending in <i>-ty, -ent, -ant</i> . Sentence making and completing.	Uses of common prefixes. Endings <i>-ier, -eer, -ear, -ere, -ity, iety, -city, -sity</i> . Use of <i>his, is, of, off, two, too</i> .
6th	Words ending in <i>-y, -ent, -ant</i> . Rule for final <i>-y</i> . Sentence making and completing.	Uses of common suffixes. Endings <i>-en, -in, -on, -le, -el</i> . Rule for words ending in <i>-y</i> . Use of <i>as, has, then, than</i> .
7th	Rule for doubling final letter. Common Anomalies. Transcription and sentence making and completing	Uses of capital letters and stops. Prefixes and suffixes completed. Endings <i>-ur, -ure, -our, -re</i> . Words of similar sound.

(k) **Needlework.**—In arranging and carrying out any course of instruction in Needlework, the following suggestions, which are taken from official sources, will be found useful :—

- (1) All work done by the children from the beginning of the working school year should be preserved in the school and shown to the Inspector at any of his visits, should he require it. The work should be presented in the same condition as when completed by the scholars, and the exercises should be sufficient in number to show that steady progress has been made.
- (2) The Inspector may at any of his visits make enquiry as to the teaching of needlework in any or all of the classes of the school, and shall make such enquiry at least once a year. He will on such occasions direct his attention to ascertaining from enquiry and from examination of the finished work—
 - (a) Whether sufficient time is given to instruction in needlework.
 - (b) Whether the instruction is evenly distributed throughout the year.
 - (c) Whether, having regard to the time of his visit, a sufficient number of useful garments and knitted articles have been completed, or whether, in the absence of completed garments, there is sufficient evidence that thorough instruction has been given in the methods of cutting out and making up garments.
 - (d) Whether sufficient opportunity is given for practice in mending garments.
 - (e) Whether due attention is paid to all the exercises set down in the approved scheme of work.
- (3) For the purpose of his enquiry he may set the children, in any class, exercises corresponding to that part of the scheme of work which has been overtaken at the time of his visit.
- (4) These exercises should as far as possible, be given upon the garments with which the children are occupied at the time. Practice of stitches upon waste material to the detriment of more useful work should be discouraged.
- (5) The Inspector will also, where possible, take opportunity of seeing a class at work, and may require teachers of all grades, including pupil teachers and certificated or uncertificated assistants, to give evidence of their power of teaching needlework by demonstration and by the simultaneous method.
- (6) It is essential that children should be taught needlework without counting threads (a habit which is most pernicious to the eyesight), and that their knowledge of it should be attained simply by training the hand to work with the eye.
- (7) Materials and stitches should not be so fine as to strain the children's eyesight, and the practice of needlework of too fine a character will be considered a defect in the instruction. Children of weak eyesight must not be given any exercise which will be injurious to their eyes, and in serious cases they should be excused altogether.
- (8) Coloured cottons are recommended throughout. The object of giving two colours is to test the children's knowledge of "joinings"; this must be attended to in all cases.

- (9) Great attention should be paid to carefulness in teaching "joinings" and "fastenings" on and off, and to general neatness of finish.
- (10) Garments should be made by each girl in a school for older children, and those made by girls in the lower classes should, as a rule, be cut out by girls in the higher classes, who should be taught to fix their own work; but half-time scholars should be exempted from making garments, and their work will in all cases be leniently judged, both as regards quantity and quality. In cutting out, more credit should be given to correct proportion and useful, intelligent work than to elaborate or trimmed paper models. This applies more particularly to the cutting out that may be shown as part of the work for the year.

CURRICULUM IN NEEDLEWORK.

INFANTS.

- (1) Needle drill; Position drill.
- (2) Strips (18 inches by 2 inches) in simple hemming with coloured cotton in the following order, *viz.*: (1) Black, (2) red, (3) blue.
- (3) Knitting-pin drill.
- (4) A strip knitted (12 inches by 3 inches), in cotton or wool, or four small squares (3 inches by 3 inches).

GIRLS.

Class I.

(This class may be taught with the older children or with the infants, according to the organisation of the school.)

- (1) Hemming, seaming (top sewing), felling. A small untrimmed garment or other useful article showing these stitches.
- (2) Knitting. Two needles, plain, *e.g.*, a strip or a comforter.

Class II.

- (1) The work of the lower class with greater skill. A small untrimmed garment or other useful article.
- (2) Knitting. Two needles, plain and purled, *e.g.*, cuffs or any simple knitted article, vests, strips for petticoats, &c.

Class III.

- (1) The work of the previous class, and stitching on coarse material, pleating, and sewing on strings. A simple untrimmed garment, *e.g.*, a pinafore, an apron, a petticoat.
- (2) Herring-bone stitch on single thread canvas or on cheese cloth.
- (3) Darning (simple) on single thread canvas or on cheese cloth.
- (4) Knitting. Four needles, plain and purled, *e.g.*, cuffs, welts of socks, &c.

Class IV.

- (1) The work of the previous classes, and gathering and setting-in. An untrimmed garment, *e.g.*, a chemise, child's overall, &c.
- (2) Darning, plain (as for thin places), on stocking-web material.
- (3) Knitting. Four needles, a simple knitted garment.
- (4) Patching on coarse flannel (herring-bone stitch).
- (5) Cutting out, in paper, a child's chemise or plain pinafore (two sizes), to be cut out by some simple scale of proportion.

Class V.

- (1) The work of previous classes, with button-holing and sewing on buttons. Putting on tape loops and strengthening tapes. A simple garment to be cut out by the maker.
- (2) Knitting. Four needles, a simple knitted garment.
- (3) Plain darning a hole in stocking-web material.
- (4) Cutting out in paper and in material a garment suitable for making up in Class III.

Class VI.

- (1) The work of previous classes and tuck running. Any garment (showing the stitches of this and previous classes), to be cut out by the maker.
- (2) Patching in calico and print.
- (3) Cutting out in paper and in material a garment suitable for making up in Class IV.

Class VII.

- (1) The work of previous classes and gusset making. Garment cut out by the maker.
- (2) Darning on coarse linen (diagonal cut) and on woollen material (hedge tear).
- (3) Cutting out in paper a reduced and an enlarged pattern of the garment selected for the year's work.

Alternative schemes of Needlework adapted to the special requirements of a school or district may be submitted for the Inspector's approval. Such schemes may usefully include provision for mending the children's own clothes, or clothes brought by them from their homes, and must in all cases contain a certain amount of cutting out and garment making.

Miscellaneous Subjects of School Instruction.—The choice of the additional subjects of the curriculum given on page 102 will be chiefly determined by the following considerations:—

- (1) The productions of the district in which the school is situated, and the probable industrial pursuits of the children; for instance, agriculture, botany, cottage gardening, or dairy work, would be well adapted to the requirements of rural schools; physics, chemistry or mechanics might be specially

suitable for boys in various manufacturing districts; domestic economy, laundry work, or cookery may be advantageously taken in girls' schools; and so on.

- (2) The special qualifications of the staff, and the supply of available apparatus and materials; thus one school may take shorthand or book-keeping with profit; another may deal more successfully with physiology or hygiene; a third with manual instruction, and so on.

Whatever be the subject selected, it is necessary that the scheme should be well graduated, that it should be adapted to the age of the pupils, that it should make them acquainted not with words only, but with *facts* and *materials* of the outer world, and that it should be well illustrated by models, diagrams, and pictures of sufficient size, and where practicable by specimens and experiments.

While it is beyond the scope of the present work to give detailed schemes in each of these additional subjects, the following may be suggested as samples of the manner in which such curricula may be constructed. The instruction in each may be spread over more than one year, if desired.

(a) **Mechanics.**

States of Matter—solid, liquid, and gaseous.
 Properties of Matter.
 Measures of length, time, velocity, and space.
 Matter in motion.
 Weight, mass, inertia, and momentum.
 Measures of force and work.
 The simple mechanical powers.
 Parallelogram of forces and velocities.

(b) **Hygiene or Domestic Economy.**

The Functions of the Human Body.—The organs and systems; work of the systems. Waste and repair. Nutrition—gaseous, liquid, and solid.
 Personal Habits.—Work and exercise. Recreation. Rest. Sleep. Cleanliness. Bathing. Meals. Digestion.
 Surroundings.—Light, warmth, moisture, air, water, soil, plants, animals, parasites and their effects upon the human body. Healthy and unhealthy homes.
 Air.—Composition of air under various conditions. Deleterious impurities and their sources. Change of air. Ventilation.
 Water.—Uses. Kinds. Sources. Contamination. Wells. Cisterns. Filters.
 Food.—Mineral, vegetable, and animal food. Diet. Liquid and solid foods and beverages. Cooking and preparation. Unfit and adulterated foods.

Clothing.—Choice of Materials; wool, cotton, linen, leather.

Treatment of slight wounds and accidents.

Common Poisons.—Description of poisonous articles used in ordinary domestic life, and precautions respecting their use.

(c) Physiology.

General build of the human body.

Names and positions of the internal organs.

Blood : form and size of corpuscles.

Organs of circulation, respiration, and digestion; their structure and functions.

The skin; its structure and functions.

General account of the brain.

Structure and functions of the organs of smell, taste, hearing, and sight.

(d) Agriculture.

Soils and their plant food, and the crops produced therefrom.

Milk; its character and uses, its preservation, and the various products obtained from it.

Plant life; manures and tillages. Proper use of plant food.

Practical instruction in the treatment of milk (on the basis of Cookery instruction) with explanation of processes and results.

Variations in crops, seeds, and live stock.

Elementary instruction in dairy management, poultry management, and the management of bees.

(e) The Science of Common Things.

Under this heading it is possible to draw up schemes adapted to the requirements of any class, or any school. The following subdivisions are necessarily wide in their requirements and are simply intended to *suggest* the different lines of teaching which may be followed. In most instances, a single section will be found ample for one year's work.

Brief survey of physical properties of bodies, serving to determine their uses and relative value.

Mechanical facts and principles most serviceable in daily life.

Hydrostatic and Aerostatic laws most commonly applied.

Familiar notions of sound, light, heat, electricity, and magnetism.

Brief survey of the most essential facts and principles of inorganic and organic chemistry.

Leading features of human physiology.

Outlines of the animal and vegetable kingdoms, establishing a classified acquaintance with the resources they supply.

The Home, including design and construction on hygienic and economic principles. Materials. Fixtures and furniture. Heating and lighting.

Clothing. Food and beverages. Cleanliness and disinfection.

Safety from accidents and injuries. First aid to the injured, and simple remedies. Means of relief and comfort for the infirm. Precautions against endemic and epidemic diseases.

Discipline of mind and body. Popular influences of music and of the graphic arts. Employments for leisure times.

Household management and thrift. Provident organisations on sound principles of social economy. Savings Banks

(f) **Cookery.**

Where the Inspector reports that special and appropriate provision is made for the practical teaching of Cookery by a teacher holding a certificate from some training school of cookery recognised by the Board of Education, a grant of 4s. may be made on account of any girl who has attended not less than 40 hours during the school year (of which not more than eight hours may be in any one week nor more than four hours in any one day) at a cookery class of not more than 18 scholars, and has spent not less than 20 hours in cooking with her own hands, and not less than 14 hours in attendance at demonstration lessons. Attendances made by girls under 11 years of age will not as a rule be recognised for the purpose of this grant.

The time for cookery must be entered in the time-table, and should be not less than two continuous hours at any meeting. A list of dishes taught during the school year, and the record of the instruction given at each lesson, must be submitted to the Inspector at the close of the school year.

For the purpose of a demonstration lesson, not more than three classes of 18 scholars (or 54 altogether) may be present, provided the Inspector reports that the number may be conveniently accommodated. But for the 20 hours required for cooking with their own hands (during which time no demonstration lesson can be given), not more than 18 scholars should be taught at the same time by one teacher.

The grant for this subject may also be made on account of boys over 12 years of age, who are, with the special sanction of the Board, receiving instruction in Cookery in schools situated in seaport towns.

The following graduated scheme is suggested for a three-years' course in the subject:—

First Year.—Cookery Principles and Primary Methods illustrated by simple dishes. The choice and cost of materials. Cleaning, lighting, and management of stove. Scullery work.

Second Year.—Instruction should be given on the various Food Stuffs, i.e., cereals, pulse, fruits, vegetables, meats, and fish; beverages. The dietary value of food. Digestion of albumen, starch, fat. More advanced dishes should be demonstrated and practised at each lesson illustrating over again the Primary Methods taught in the First Year course.

Third Year.—Complete dinners should be cooked by groups of children attending the class. The price of the dinner and the number of persons for whom it is intended should be written on the blackboard.

Instruction should also be given on :—

- (a) Expenditure of wages on food.
- (b) The making of preserves.
- (c) Use and abuse of tinned foods.
- (d) Vegetarian diets.
- (e) Preparation of food suitable for infants.

The scholars should have practice in drawing up menus of dinners suitable for an artisan family, stating the price of the various articles and season of the year to which they are adapted.

In drawing up a detailed syllabus for a course of lessons in Cookery, special care should be taken that :—

- (a) Thorough instruction is given in the first principles and primary methods of cookery, and that the teaching is systematic and progressive.
- (b) Strict attention is paid to cleanliness, order, and economy.
- (c) The dishes taught are suited to the wants of the working classes living in the neighbourhood.
- (d) The apparatus includes such stove and other appliances as are usually found in the homes of the working people of the neighbourhood, and these are generally used at the meetings of the class.
- (e) The children have adequate knowledge of the dietary value of the foods cooked.

No writing should be done till nearly the end of the demonstration class, while the utensils are being cleaned and the dishes are cooking. This would occupy the last third of the time. Writing should not be done in the practice class, but a blackboard summary and a few well-directed questions on the lesson are allowable during the last fifteen minutes.

(g) Laundry Work.

Where special and appropriate provision is made for the practical teaching of Laundry Work, a grant of 2s. may be made on account of any girl who has attended not less than 20 hours during the school year (of which not more than eight hours may be in any one week or four hours in any one day) at a laundry class of not more than 14 scholars, and has spent not less than 10 hours in working with her own hands. Attendances made by girls under eleven years of age will not, as a rule, be recognised for the purpose of this grant.

The time for Laundry Work must be entered in the Time-table. A record of the instruction and work done must be submitted to the Inspector.

Not more than 42 scholars are permitted to be present at a demonstration class.

Any scheme of lessons in the subject is expected to include instruction in the following :—

- (a) Washing of linen, woollen, cotton prints, muslins, and laces.
- (b) Starching and stiffening processes.
- (c) Methods of drying and hanging out of clothes.
- (d) Ironing and goffering.
- (e) Cleansing of tubs, copper, irons, etc.

Simple explanations should also be given on :—

- (a) Hard and soft water.
- (b) Use of alkalis in washing.
- (c) Different kinds of soap.

The appliances and methods used should be such as are possible in the homes of working people, and the teacher should have a *practical* as well as a *theoretical* knowledge of the subject.

In both Cookery and Laundry classes it is advisable that some simple remedies should be at hand for the treatment of burns and scalds.

(h) Household Management.

The scheme of work in this subject may contemplate one or more courses, each of which must cover the whole of an educational year, and must provide for at least 100 hours' instruction being given by the teacher. The curriculum should assign about 40 hours out of every 100 to Cookery, about 20 to Laundry Work, and about 40 to Practical Housewifery or Domestic Economy. The rate of grant payable is ninepence for every complete ten hours of the aggregate number of hours of attendance made in the educational year, but not more than 200 hours' attendance in the educational year may be included in the aggregate for any one girl, and no grant for instruction in Cookery, Laundry Work, or Dairy Work is payable on account of any girl for whose instruction grant for Household Management is paid. No attendances in this subject are recognised for any girl under twelve years of age; and in each section of the course at least half the allotted time must be given to practical work *to be done by the scholars themselves*. Not more than 42 scholars are permitted to be present at a demonstration lesson, and there must be at least one teacher for every 14 girls doing practical work.

(2) **Manual Instruction or Handicraft.**—The advantages of including Manual Instruction in any course of elementary education are three-fold—mental, moral, and physical; the different branches of the subject serve to stimulate intelligence, to foster and encourage habits of industry, and to give efficient training to the hand and eye, which could not be obtained by any other means, and which will be of the greatest benefit in after life.

The term is generally restricted in its application to cardboard, wood, and metal work; but it may, in its wider sense, be taken to include clay-modelling, cottage-gardening, practical agriculture, laundry and dairy work, and cookery.

With respect to wood and metal work, the courses are designed to teach the use of tools employed in handicrafts, not so much as an initiation in a special handicraft, as a disciplinary educational course for the purpose of training the hand and eye to accuracy by progressive series of exercises connected with Freehand Drawing and Drawing to Scale. The scheme should be conducted in accordance with the following regulations and suggestions:—

1. (a) The course of instruction must cover the whole educational year.
- (b) No attendance may be recognised for a boy under twelve years of age, or for a boy who is attending school as a half-timer under the provisions of any Act regulating the education of children employed in labour.
- (c) At least three-quarters of the weekly time allotted to this subject must be given to practical work at the bench by the scholar from working drawings to scale. These, as a rule, should be previously made by him in the handicraft classroom or centre, under the immediate supervision of the teacher of Handicraft.
- (d) There must be at least one teacher for each group of twenty scholars working at the benches.
- (e) A Handicraft Centre should, as a rule, have its own teacher or teachers, but where circumstances do not permit of the employment of a special teacher, the scholars may be instructed in Handicraft with the approval of the Board of Education, by one of the regular teachers of the school, who, if not fully qualified, must be assisted by a skilled artisan.
- (f) A Grant of seven shillings may be claimed on account of each boy who has attended the instruction for not less than twenty weeks in the educational year.
- (g) Early notice of any alteration of the time or times as provided in the time-table for manual instruction should be sent to the Inspector; and also of times when the class may have to be closed for any special reason, such as the teacher's illness, epidemic, etc.

2. The work of the class will be judged by an Inspector at a visit or visits which he will make in the course of the school year, generally without notice.

3. Before commencing to work with tools, it will be found very useful to practise the younger children in cutting out and putting together solid models in cardboard or paper from plane projections (technically known as "nets"). All work with tools must be from careful full-sized or large-scale drawings prepared by the scholar. The preparation of these drawings should, whenever practicable, form part of the instruction, and care should be taken that the scholar properly appreciates the importance of accuracy in working, and strict attention should be paid to dimensions.

4. The tools required for the early stages of Manual Instruction in working in wood are the saw, the plane, and the chisel. The construction and mode of use of these tools, and demonstrations illustrating the proper methods of sharpening them and of keeping them in good working order, should form the subjects of preliminary lessons. *Second year, or more advanced scholars, may with advantage be required themselves to sharpen the edge-tools they use.*

5. Clear ideas respecting the various kinds of hard and soft woods, the growth and structure of wood, its fibre, and grain, and the uses of the different varieties of timber, may be given by means of a small collection of the chief descriptions of timber commonly employed in working in wood, with longitudinal and cross-sections.

6. A great variety of exercises may be arranged, suited to the strength and ability of the scholar, in the use of these tools, which will give an elementary knowledge of the principles of construction, and at the same time teach accuracy and carefulness. The earlier exercises should include some such as the following:—Sawing off across the grain of the wood, and sawing along the grain of the wood, blocks and strips of given dimensions taken from a drawing prepared by the boy himself, and having marked on it the required dimensions. Many varieties of tenon and of halved joints can be made in the rough with the saw alone.

7. Instruction in the use of the plane can be commenced by planing small surfaces up to 3 inches in width and 1 foot or upwards in length, and then planing down strips to a given thickness. The planing of two surfaces at right angles to each other, the preparation of a right square prism and a hexagonal prism, and the construction of a straight-edge, with bevelled edges, should follow later.

8. The joints used by carpenters form a valuable series of exercises in which the use of the saw and chisel may be learnt. The teacher should draw up a complete series of simple and graduated exercises for the early stages which all the scholars attending the class should execute in turn. No attempts should be made at first to construct small articles of furniture. Neatness of workmanship and a due regard to finish should be insisted upon in all cases.

9. The proper use of nails and screws should be explained and practised till a fair measure of accuracy has been attained.

10. So far the instruction does not involve the use of curved surfaces. If the workshop is provided with a lathe, another graduated series of exercises might be arranged for more advanced scholars, to include the simpler forms of turning, but this is not insisted upon.

11. In iron, the scholar should begin by chipping a plane surface, then completing it with a file; filing a cube until the sides are accurately plane and parallel to each other; making a hexagonal prism and a hexagonal bolt-head will be found good exercises for using the file; making a nut gauge, a square, and various kinds of punches might follow. Drilling a circular hole in an iron plate, screw-cutting, and similar exercises will enable a lad to take part in the construction of some useful tool for the workshop. Instruction may subsequently be given in the methods of joining metal work by welding, riveting, etc. The use of cold riveting may be shown even where there is no smith's hearth. A similar series of exercises might be introduced for brass in place of iron. Where facilities exist, a lathe for metal work and a blacksmith's forge will be found extremely useful.

12. There should be not less than 4 feet run of bench, and a space of at least 2 feet in width in front of the bench, for each scholar under instruction. The workshop should be well-lighted and ventilated. There should be a bench and set of bench tools for the use of each scholar when under instruction, with a proper place in which to keep them, and supplementary tools conveniently arranged; each bench being provided with a wood or metal vice, as the case may be. A teacher cannot properly direct the Manual Instruction of more than about 15 or 20 boys at one time. But where more than one teacher is present during the whole meeting of the class the number of scholars may be increased in proportion.

COMPLETE SPECIMEN SCHEMES OF INSTRUCTION.

The following schemes of instruction suited to requirements of various types of school, have been issued by the Board of Education as guides to teachers in preparing schemes for themselves. Each consists of such a summary of the curriculum as should appear in the log book at the beginning of the school year. In all cases, needle-work, physical training, drawing, and singing are intended to be taken according to the ordinary codal requirements, or according to a detailed syllabus approved by H.M. Inspector; while instruction in such additional subjects as Handicraft, Cookery, Laundry-work, Household Management, etc., will depend on the provision of adequate equipment and facilities for teaching; hence these have been omitted from the schemes here given. Although the term "Standard" is not now strictly required, it has been found convenient to retain it, particularly for indicating the various requirements in Arithmetic, since it serves to show what may reasonably be expected from each class, and at the same time facilitates preparation for Labour Examinations.

SCHEME 1.

FOR SMALL COUNTRY SCHOOL, WITH AVERAGE ATTENDANCE OF FROM 20 TO 60 OLDER CHILDREN.

STAFF (exclusive of Staff for Infants): One or two Teachers, according to the number of Children.

	Lower Division.	Upper Division.
English	Reading from suitable reading books (to be changed from year to year). Copy-book writing and transcription. Formation of easy sentences both orally and on paper.	Reading from suitable reading books (to be changed from year to year), one of which should be a History of England, and another a Geography book. Reproduction of passages read by children, letter-writing, written descriptions of simple objects discussed in object lessons.
Arithmetic	Group (a) as in Schedule I. for Standard I. Group (b) as in Schedule I. for Standard II. Group (c) as in Schedule I. for Standard III.	(a) as in Schedule I. for Standard IV. (b) as in Schedule I. for Standard V. (c) as in Schedule I. for Standard VI.
Geography	Simple lessons on Geography of neighbourhood, and outlines of England. Explanation of geographical terms as they occur.	Study of contents of Geographical Reader, with oral exposition. Easy Map drawing.
History	-	Study of contents of Historical Reader, with oral exposition.
Common Things	A course of lessons, to be given to the whole school, dealing with objects familiar to the children, and with matters likely to bear upon the children's lives.	
Elementary Science	Where there are two teachers, simple practical instruction in Horticulture or Domestic Economy may be added	

SCHEME 2.

FOR LARGE COUNTRY SCHOOL, OR SCHOOL IN COUNTRY TOWN, WITH AVERAGE ATTENDANCE OF ABOUT 120 OLDER CHILDREN.

STAFF: Certificated Head Teacher, two Assistant Teachers or Certificated Head Teacher, one Assistant Teacher, and two Pupil Teachers.

	Class 3.	Class 2.	Class 1.
English - -	Reading from suitable reading books (to be changed each year). Simple Recitation. Copy-book writing. Oral formation of easy sentences and Dictation of such sentences.	Reading from suitable reading books (to be changed each year). Simple Recitation. Dictation of easy sentences. Formation by children, both orally and in writing, of sentences about matters of every-day life or about matters dealt with in the object lessons. Copy-book writing.	Reading from suitable reading books (to be changed each year), one of which should be a history of England. Recitation. Written reproductions of stories told by teacher, or of passages read by children, or of science lessons. Letter-writing. Grammatical rules bearing upon correct composition.
Arithmetic - -	Group (a) as in Schedule I. for Standard I. for Group (b) as in Schedule I. for Standard II.	Group (a) as in Schedule I. for Standard III. Group (b) as in Schedule I. for Standard IV.	Group (a) as in Schedule I. for Standard V. Group (b) as in Schedule I. for Standard VI.
Geography - -	Elementary notions, illustrated by features of neighbourhood and by map of England. England in outline.	Outlines of Continents in turn -	England in detail, in turn with some other country of which Teacher has special knowledge.
History - -	- - - - -	Simple oral lessons on great Englishmen - - -	Study of contents of Historical Reader, with oral exposition.
Common Things -	} A course of lessons dealing with objects and operations of every-day life - - - - -		
Elementary Science -			
			A course of lessons on Elementary Physics and the industries and natural products of the neighbourhood.

SCHEME 8.

FOR A TOWN SCHOOL, IN A POOR DISTRICT, WHERE FEW SCHOLARS OVER 13 MAY BE EXPECTED, WITH AN AVERAGE ATTENDANCE OF FROM 280 TO 320.

STAFF: Head Teacher and six Assistant Teachers, or Head Teacher and five Assistant Teachers, and two Pupil Teachers.

	Class 6.	Class 5.	Class 4.	Class 3.	Class 2.	Class 1.
English	Reading from suitable books. Simple recitation. Transcription and Copy-book writing.	Reading from suitable books. Simple recitation. Oral formation of very simple sentences. Similar sentences from Dictation. Transcription and Copy-book writing.	Reading from suitable books. Simple recitation. Formation of rather harder sentences, both orally and in writing. Similar sentences from Dictation. Copy-book writing.	Reading from suitable books, one of which should be a History of England. Recitation. Formation, both orally and in writing, of two or three connected sentences upon some subject with which children are familiar (e.g. subject of object lesson). Illustrations of use of parts of speech. Copy-book writing.	Reading, Recitation, and Composition as in Class 3, together with reproduction of short story read or told by teacher. Letter-writing and grammatical rules for correct composition.	Reading, Recitation, and Composition as in Class 2, together with reproduction of passages read by children in school reading books especially Geography and History reading books
Arithmetic	As in Schedule I. for Standard I. Elementary notions.	As in Schedule I. for Standard II. The country or district, with explanations of geographical terms as they occur.	As in Schedule I. for Standard III. England and Wales.	As in Schedule I. for Standard IV. The British Isles and Europe.	As in Schedule I. for Standard V. One of the Contents, with special reference to British possessions.	As in Schedule I. for Std. VI. As in Class 2.
History	-	-	-	Exposition of contents of Historical reader.	As in Class 3	As in Classes 2 and 3.
Elementary Science & Common Things.	A course of observation lessons on every-day things	As in Class 6	As in Classes 5 and 6, but rather more advanced lessons.	{ Boys. A graduated course of lessons in Physics and Chemistry. Girls. A graduated course of lessons in Domestic Science.		

SCHEME 4.
FOR LARGE TOWN BOYS' SCHOOL IN PROSPEROUS CIRCUMSTANCES.

	Class 7.	Class 6.	Class 5.	Class 4.	Class 3.	Class 2.	Class 1.
-English -	Reading from suitable reading books. Recitation. Transcription and Copy - book writing.	Reading from suitable reading books. Recitation. Oral formation of very simple sentences. Similar sentences from dictation. Transcription and Copy - book writing.	Reading, Recitation and Writing as in Class 6, with formation of rather harder sentences, both orally and in writing.	Reading, Recitation and Writing as in Class 5, with illustrations of parts of speech. One reading book to be a History of England.	Reading, Recitation, and Writing as in Class 4, with written production of passages read by the children, or of stories told by the Teacher. Simple grammatical rules bearing on Composition.	Reading, Recitation, and Writing as in Class 3, with Letter-writing.	Reading, Recitation, and Writing as in Class 2, with Composition on every-day matters.
-Arithmetic -	As in Schedule I. for Standard I. Elementary notions.	As in Schedule I. for Standard II.	As in Schedule I. for Standard III. England and Wales.	As in Schedule I. for Standard IV. Europe, including the British Isles.	As in Schedule I. for Standard V. America, with special reference to British Colonies.	As in Schedule I. for Standard VI. Africa and Australia.	As in Schedule I. for Standard VII. Asia.
-Geography -	The country or district, with explanations of geographical terms as they occur.						
-History -	Course of observation lessons on every-day things.						
-Elementary Science -							
-French -		Names of familiar objects.	As in Class 6, with easy phrases.	As in Class 5, with reading from an easy book and formation of easy sentences.	As in Class 4, with easy grammar.	As in Class 3, with conversation and more advanced grammar.	As in Class 2, with translation of easy passages into French.
-Algebra -					Notation and four simple rules.	G.C.M. and L.C.M. and simple equations.	Quadratic and Simultaneous Equations, and problems leading to Simple Equations.

SCHEME 5.

FOR BOYS' SCHOOL IN SEASIDE TOWN, WITH AVERAGE ATTENDANCE OF ABOUT 170.

STAFF: Head Teacher, two or three Assistant Teachers and Pupil Teachers.

	Class 5.	Class 4.	Class 3.	Class 2.	Class 1.
English -	Reading from suitable books. Recitation. Oral formation of very easy sentences. Transcription.	Reading from suitable books. Recitation. Formation of sentences as in Class 4. Writing of easy sentences. Transcription.	Reading from suitable books. Recitation. Formation of sentences as in Class 4. Writing of easy sentences. Transcription.	Reading from suitable books, one of which should be a History of England. Recitation. Reproduction in writing of passages read by children, or of stories told by Teacher. Letter-writing. Grammatical Rules bearing upon Composition. Easy Dictation.	Reading from suitable books, one of which should be a History of England. Recitation. Reproduction in writing of passages read by children, or of stories told by Teacher. Letter-writing. Grammatical Rules bearing upon Composition. Easy Dictation.
Arithmetic -	As for Standard I. in Schedule I.	As for Standard II. in Schedule I.	As for Standard III. in Schedule I.	As for Standard IV. in Schedule I.	Group (a) as for Standard V. in Schedule I. Group (b) as for Standard VI. in Schedule I. Group (c) as for Standard VII. in Schedule I.
Geography -	Lessons on Geography of the neighbourhood.	Outlines of England; Geographical definitions as they occur.	Outlines of British Isles - - -	Outlines of one of the Continents, say Europe.	Outlines of Asia, Africa, and America (in turn), with special reference to British possessions.
History -	- - - -	Stories from period before 1066.	Stories of period 1066-1485	Exposition of contents of Hist. of Eng. used as reading book.	Exposition of contents of History of England used as reading book.
Elementary Science and Common Things.	A course of lessons on Marine Animals and Plants, on local Rocks, Pebbles, &c.; various sorts of Boats, Ships, &c.; Lighthouses and Light-ships; the Local Tides; Flags of different Nations, &c.				
				The Magnet and Compass. Practical methods of finding the Cardinal points. Apparent movements of Sun and Moon. Measurement of Sun's altitude by shadows.	Practical measurements of Areas and Volumes. Lever; Pulley; Inclined Plane; Practical examples of Parallelogram of Forces, and Parallelogram of Velocities. The chief constellations and the apparent movements of heavenly bodies.

SCHEME 6.

FOR GIRLS' SCHOOL WITH AVERAGE ATTENDANCE OF ABOUT 170.

STAFF: Head Teacher, two Assistant Teachers and two Pupil Teachers.

	Class 5.	Class 4.	Class 3.	Class 2.	Class 1.
English -	Reading from suitable books. Recitation. Transcription. Oral formation of very easy sentences.	Reading from suitable books. Transcription. Recitation. Formation (both orally and in writing) of easy sentences.	Reading from suitable books. Dictation. Formation (in writing) of two or three sentences regarding objects dealt with in object lessons. Dictation of similar sentences by Teacher.	Reading from suitable books, one of which should be a History of England. Recitation. Letter-writing. Reproduction in writing of passages read by the children, and of stories told by the Teacher. Grammatical rules bearing upon Composition, easy Dictation.	Reading from suitable books, one of which should be a History of England. Recitation. Letter-writing. Reproduction in writing of passages read by the children, and of stories told by the Teacher. Grammatical rules bearing upon Composition, easy Dictation.
Arithmetic -	As for Standard I. in Schedule I. of Code.	As for Standard II. in Schedule I. of Code.	As for Teacher. III. in Schedule I. of Code.	As for Standard IV. in Schedule I. of Code.	Group (a) as for Standard V. in Schedule I. of Code. Group (b) as for Standard VI. in Schedule I. of Code. Group (c) as for Standard VII. in Schedule I. of Code. Outlines of Geography of one of the Continents.
Geography -	Lessons on Geography of the neighbourhood.	Outlines of Geography of England, with geographical definitions.	Outlines of Geography of British Isles.	Outlines of Geography of one of the Continents.	Study of History of England used as a reading book.
History -	Stories about Ancient Britons, &c.	Stories from English History before 1066.	Stories from English History, 1066-1185.	Study of History of England used as a reading book.	Lessons on the Choice of Food and Drink, on the Management of Health, and on the Methods of dealing with Common Ailments - Colds, &c.
Elementary Science and Common Things.	A course of lessons on familiar Animals, Plants, and Substances.				

SCHEME 7.

FOR LARGE COUNTRY SCHOOL, WITH AVERAGE ATTENDANCE OF ABOUT 120 OLDER CHILDREN.

STAFF: Head-Master and two Assistant Teachers (besides Teacher of Infants), or Head Master, one Assistant Teacher, and two Pupil Teachers.

	Class 3.	Class 2.	Class 1.
English - - -	Reading from suitable reading books. Recitation. Transcription and copy-writing. Oral formation of simple sentences about familiar objects, especially those dealt with in object lessons.	Reading from suitable reading books. Recitation. Formation (orally and in writing) of sentences containing given words and of sentences about familiar objects, especially those discussed in object lessons.	Reading from suitable reading books, one of which should be a History of England; Recitation. Written reproductions of Science and other lessons. Descriptions of results obtained in School garden. Occasional letter-writing and reproduction of short stories. Grammar taught incidentally during Reading and Composition lessons.
Arithmetic - - -	Group (1) as for Standard I. in Schedule I. Group (2) as for Standard II. in Schedule I.	Group (1) as for Standard III. in Schedule I. Group (2) as for Standard IV. in Schedule I.	Group (1) as for Standard V. in Schedule I. Group (2) as for Standard VI. in Schedule I. Group (3) as for Standard VII. in Schedule I.
Geography - - -	Geographical terms illustrated by Geography of neighbourhood, and by models in sand, clay, sawdust, &c.	England (particularly neighbouring counties), and, in alternate years, Scotland and Ireland, and general arrangement of continents and oceans.	Outlines of continents; the different continents in turn; special reference to British Colonies, &c.
History - - -	- - - - -	- - - - -	Exposition of contents of History of England used as a reading book.
Common Things and Elementary Science	A course of lessons on animals and plants familiar to the children.	A course of lessons on minerals and manufactures of England and Wales, and on less familiar local plants and trees.	Lessons on Beekeeping and Poultry keeping, and reasons for the chief processes of Agriculture, <i>edc</i> , Village, Manuring.

SCHEME 8.

FOR LARGE COUNTRY SCHOOL, WITH AVERAGE ATTENDANCE OF ABOUT 120 OLDER CHILDREN.

STAFF: Head Teacher and two Assistant Teachers (besides Teacher of Infants), or Head Teacher, one Assistant Teacher, and two Pupil Teachers (besides Teacher of Infants).

	Class 3.	Class 2.	Class 1.
English - - -	Reading from suitable reading books. Recitation. Oral reproduction by children of (1) stories told by Teacher; (2) passages read in class; and (3) information obtained in object lessons. Transcription of sentences bearing on object lessons, and copy-writing. Lower group as for Standard I. in Schedule I.	Reading from suitable reading books. Recitation. The formation, orally and in writing, of two or three sentences about some familiar object, and the oral reproduction of stories told by the Teacher. The chief parts of speech. Copy-writing. Lower group as for Standard III. in Schedule I.	Reading from suitable reading books, one of which should be a History of England. Recitation. Composition, as in the second class, but at rather greater length. Letter-writing. Simple grammatical rules.
Arithmetic - - -	Upper group as for Standard II. in Schedule I.	Upper group as for Standard IV. in Schedule I.	Lower group as for Standard V. in Schedule I.
Geography - - -	Elementary ideas illustrated by models of sand and clay, and by the neighbourhood of school.	England, with special reference to neighbourhood.	Upper group as for Standard VI. in Schedule I.
History - - -			The Centurys in turn.
Elementary Science and Common Things	Object lessons on common animals and birds, and their food, and on common wild and cultivated plants. Observations on growth of plants in school gardens.		Explanation of contents of History of England used as a reading book. Experimental lessons on the constituents of air, water, and soil, and on the food of plants. Visits where possible to nursery-gardens, creameries, poultry farms, &c. Harrier exercises in Modelling, or clay, or woodwork of common type.
Manual Work - - -	Modelling in clay, objects, e.g., apple, plum, acorn, nut, discussed in object lessons.		Drawing as in Class 2, and also
Drawing - - -	Drawing, freehand and with ruler, the simplest right lined forms from actual objects, e.g., rake, mallet, cupboard, door, &c. The use of set squares.	Drawing as in Class 3, but with the introduction of curves, e.g., sickle, scythe, leaves, &c. Scale Drawing from actual objects; the use of compasses.	Drawing from rectangular and circular models, and from easy common objects. Geometrical figures with instruments.

SCHEME 9.

FOR BOYS' TOWN SCHOOL WITH AVERAGE ATTENDANCE OF ABOUT 200.

STAFF: Head Teacher, three or four Assistant Teachers, and two or three Pupil Teachers.

	Class 5.	Class 4.	Class 3.	Class 2.	Class 1.
English -	Reading from suitable reading books. Recitation. Oral formation of sentences about common objects. Transcription.	Reading from suitable reading books. Recitation. Oral formation of sentences about common objects. Dictation of very easy sentences and passages.	Reading from suitable reading books. Recitation. Formation (orally and in writing) of sentences about common objects. Easy Dictation.	Reading from suitable reading books, one of which should be a History of England. Recitation. Letter-writing and reproduction in writing by children of passages read in class. Accounts of familiar objects and scenes. Parts of speech, grammatical rules and very easy analysis.	Reading from suitable reading books, one of which should be a History of England. Recitation. Letter-writing and reproduction in writing by children of passages read in class. Accounts of familiar objects and scenes. Parts of speech, grammatical rules and very easy analysis.
Arithmetic -	As for Standard I. in Schedule I.	As for Standard II. in Schedule I.	As for Standard III. in Schedule I.	As for Standard IV. in Schedule I.	Group (a) as for Standard V. in Schedule I. Group (b) as for Standard VI. Group (c) as for Standard VII. in Schedule I. The Continents in turn; also England revised.
Geography -	Definitions, illustrated by models in sand or clay, &c.	The Geography of the neighbourhood, and the meaning of a map.	England and Wales.	The British Isles, with North America in outline.	Study of contents of Historical Reader, with oral exposition.
History -	-	-	-	Study of contents of Historical Reader, with oral exposition.	Effects of heat on solids, liquids, and gases; methods of measuring temperature and heat.
Elementary Science and Common Things -	-	-	The simpler physical properties of Water, Alcohol, Glycerine, Mercury, Ether, &c.	The lever, pulley, inclined plane experimentally treated; the syphon, barometer, and diving bell.	Manufacture of the common gases, and their elementary properties; the composition of air and water, acids and alkalis, &c.
Chemistry -	-	-	-	First notions, elements and compounds, examples of chemical action.	

Records of Work and Progress.—The object of keeping a *Progress and Examination Record Book* is to show, by means of a syllabus divided into periods, the work which a class may be expected to have done, so that an Inspector or School Manager paying a visit at any time during the school year, may be fairly able to gauge the progress made. In order to estimate the treatment of a subject as distinct from that of a single lesson, the syllabus must be carefully examined; and in order to judge of the care and regularity with which the routine of the school has been carried out, and to appreciate the degree of supervision over class progress and individual progress that has been maintained, the *Record Book* must be referred to. Hence such a book serves as a guarantee that the class-work has been done, revised, and tested in a regular and satisfactory manner.

Every *Record Book* should contain a weekly summary of the chief oral lessons, indicating the plan, illustrations, and scope of each. Space should also be provided for a copy of the class timetable; and for entering test questions and notes on the work of the class. Some teachers prefer to keep their records in the form of a regular diary, in which may be entered brief statements respecting the work done during every lesson throughout the day; and this plan has the advantage of enabling another teacher, who may happen to take charge of the class, to continue the lessons in regular order, as well as showing at a glance the progress made up to any day during the year. When this is not done, the parts of the curriculum that have been covered should be regularly entered at the end of every week.

Progress and Report Books should make provision for entering the following details:—

- (a) A syllabus of the work in every subject to be done during each period of the year (month, quarter, or term). In some subjects, a fair degree of latitude should be allowed in determining the requirements, as it is not always easy to correctly estimate before-hand the amount of work which can be satisfactorily covered.
- (b) Schedules for tabulating the results obtained in the more important subjects by individual scholars at the periodical tests.
- (c) Brief criticisms by the Head Teacher with respect to the general progress made during each period.
- (d) Remarks on the progress of individual scholars which may subsequently be found useful in determining promotion or awarding prizes.

All entries should be as brief as may be consistent with facility for convenient after-reference, and clerical work should be reduced to a minimum.

In Infant schools the Record Book need not contain schedules for individual results; but summaries of the oral lessons should be kept, and occasional lessons of special importance or difficulty may profitably be worked out in full.

The advantages of keeping such records of school work and progress are:—

- (1) The instruction is rendered more methodical than it otherwise might be.
- (2) The complete year's work is systematically covered, so that nothing is neglected.
- (3) Frequent opportunities for revision can be allowed for, towards the end of each period.
- (4) The allotted portions of work can be regularly and fairly tested.
- (5) The progress of each scholar is ensured, and the teacher is relieved from unnecessary anxiety.

EXAMINATION QUESTIONS.

1. State the main principles by which you would be guided in drawing up the curriculum for (a) an infant school; (b) a junior school; (c) a senior school.

2. How many lessons of different kinds should be made to bear upon each other in an infant school, and what are the advantages of such a combination?

3. What periodical test should a head teacher make of each child's progress, and what records of the results should he keep?

4. State what is meant by correlation, and show how it may be applied to the work of an upper class in the infant school.

5. How would you co-ordinate the lessons in Geography, History, and English for a class of elder scholars so as to make the subjects mutually helpful? Sketch briefly the plan of lessons you would adopt.

6. Make a list of 30 object lessons suitable for the highest class in an infant school, or the lowest class in an upper department. State the principles on which you would proceed to draw up such a list.

7. What purposes are intended to be served by the use of a progress and examination record class book? What particulars should such a book furnish?

8. State what is the use to a pupil teacher of keeping a diary of employments, or notes of the lessons he or she gives. If you have been accustomed to preserve such a record, describe it.

9. Give examples of varied occupations tending to promote invention among children from seven to ten years of age.

10. Make out a list of six suitable occupations and games for babies, and describe the manner in which you would conduct them.

11. If you were head teacher of a school, when and how would you test the progress of the several classes conducted by the assistants or pupil teachers? Describe the most efficient forms of test, and the manner in which you would make and preserve a record of the results.

12. It has been said that the object of school education is not only to communicate knowledge, but to teach the learner to act and think for himself. Explain how and by what sort of lessons you can best give effect to this principle, either (a) in an infant school, or (b) in a school for older children.

13. Give an outline of a course of lessons on Elementary Science adapted for elder scholars, and designed to explain the laws of health.

14. Describe some of the Kindergarten exercises with which you are most familiar, and explain the objects in view in teaching them.

15. Sketch out a course of lessons covering a year's work for a class about the middle of the school, and combining instruction in Geography and Elementary Science.

16. Name the manual employments most interesting to little children, and explain how an exercise in one of them should be conducted.

17. Draw up a syllabus of work for a class of elder children and covering a year's instruction in one of the following subjects :— (a) Word-building, (b) Needlework, (c) Physiology, (d) Drawing.

18. It has been stated that the earliest lessons in History for young children should be anecdotal and biographical. Give reasons for this recommendation, and mention a few leading incidents in English History which you think might be usefully narrated to learners before their regular chronological study of history begins.

19. What points would you keep chiefly in view in making up a scheme of object lessons? Give a list of twelve such lessons suitable either for (a) infants, or (b) older pupils; and state the reasons for your selection.

20. Show, by means of suitable examples, how the study of literature or poetry relating to any period may be utilised in the study of its history or geography.

21. In regard to either *Elementary Science* or *Manual Instruction*, state (a) the arguments for the introduction of the subject into the curriculum of school work; and (b) the equipment in the way of apparatus, illustrations, etc., needed.

22. Name those subjects in a school course which are valuable respectively (a) as useful information, (b) as practically serviceable in the business of life, (c) as instruments of mental development, and (d) as helpful in the formation of taste and character. Give reasons for your answer.

23. By what expedients other than the teaching of technical grammar is it possible to enrich a pupil's store of words, and to encourage precision in the use of them?

24. In what respects should the method of teaching History to young children differ from that employed in teaching the same subject to higher classes? Illustrate your answer with reference to the history of England in the 16th century.

25. Write out a list of ten progressive lessons on the elementary properties of *air* or *water*, and give a short sketch of one of them.

26. Describe in words, and with your own diagrams, a suitable elementary course of freehand drawing, either (a) for an infant school, or (b) for a school for older children.

27. Sketch a course of lessons on the "Phenomena of Nature and of Common Life," suited to the highest class of an Infant School, or to the lowest class of an Upper Department.

28. Explain what is meant by the "Evolutionary Method" of teaching History, and sketch a course of ten lessons for elder scholars according to this method.

29. Name the subjects which may fairly be taught in an infant school, and state the extent to which these subjects may be carried with the children before they pass to the junior department of a girls' or boys' school.

30. Draw up a scheme for teaching (a) Grammar and Composition simultaneously, or (b) the influence of the geographical features of Europe on the history of the various European countries.

CHAPTER VI.

TIME-TABLES.

Necessity and Purpose.—A well-arranged Time-table for all the subjects taught in a school is necessary for the purpose of securing order and regularity of work. Everything connected with the management of every class should be carried out with promptitude, and forethought in such matters ensures that nothing may be left to chance or the hasty decision of the moment. The proper arrangement of time and subjects is a valuable aid both to teaching and to discipline, and where such an arrangement is made, everyone in the school knows what work he has to do, when he should begin to do it, and when it should end. A carefully constructed Time-table thus serves as an exact statement of the entire routine of the school.

- (a) It shows at a glance the work of every class, the arrangement and extent of the curriculum, and the amount of time devoted to each subject.
- (b) It reduces all school-work to an orderly system; each subject falls into its natural place, and has due attention assigned to it according to its importance and difficulty and thus useful work is provided for everybody throughout the school-day.
- (c) It gives rise to punctual, methodical, and systematic habits in both teachers and taught; and economises time and effort, so that work is carried on with the least amount of strain or anxiety, and the greatest measure of success.

Difficulties in Constructing Time-Tables.—Owing to the large number of considerations involved, the construction of a really good Time-table is far from easy. The difficulties will vary according to circumstances; though in all cases a considerable amount of thought and ingenuity must be exercised in order to secure that the time is divided among the various subjects in proportion to their difficulty and importance, while Codal requirements are satisfied as well. Generally speaking, difficulties will be *fewest* in large schools where each class is taught in a separate room by an adult teacher; and *most numerous* in small schools, where the staff or class-room accommodation is limited. In the former case the chief problems to be solved will be:—

- (a) The distribution of the staff, so that each teacher may be placed in charge of those subjects which he can teach with greatest benefit;
- (b) The dovetailing of such subjects as drawing and manual instruction for boys, with needlework, domestic economy, or cookery for girls, when both sexes are taught together, so far as the other subjects are concerned;
- (c) The allowance of adequate time for the supervision of the classes by the head teacher;
- (d) The arrangement of the classes and subjects so as to facilitate re-classification of scholars.

In small schools with a limited staff these difficulties are considerably increased, and are generally intensified by the need of adequate isolation of the classes, owing to want of sufficient classroom accommodation, or by the necessity of the teacher having to keep several classes simultaneously employed.

General Considerations to be observed in drawing up a Time-table. Before constructing a Time-table, the teacher must draw up a list of the subjects forming the curriculum, assign to each the proportion of the total school-time which its importance demands, and then determine the sequence of lessons in the various classes with due regard to the nature of the subjects themselves, the character and plan of the school, and the composition of the staff. Every Time-table must be approved on behalf of the Board of Education by H.M. Inspector, and for this purpose certain requirements prescribed by the Code must be fulfilled. Hence a well-devised Time-table will pay due regard to the following considerations:—

- (1) Official Regulations of the Board of Education.
- (2) Character and plan of the School, and Composition of the Staff.
- (3) Duration and sequence of the lessons.
- (4) Times of assembly and recreation.

We will now proceed to examine each of these points in detail.

1. Official Regulations.

- (a) The time for marking and closing the registers must be clearly indicated.
- (b) After closing the registers, provision must be made for two hours' secular instruction in a school or class for older scholars, and one hour and a half for infants.

- (c) An interval for recreation must occur in each session; this should not exceed fifteen minutes in a three hours' meeting, nor ten minutes in a shorter meeting.
- (d) When Religious Instruction is given, it must be taken simultaneously by all the classes either at the beginning or end, or at the beginning *and* end of a school meeting; and the Time-table clearly showing these times for such religious observance and instruction must be kept permanently and conspicuously affixed in every schoolroom.
- (e) Physical Training must be taught throughout the school for not less than one hour per week to each class, and for not more than half-an-hour to each class on any one day; adequate time must also be allowed for teaching Drawing to all the scholars, and Needlework to girls.
- (f) No Time-table can be approved which differentiates between *fee-paying* and *free* scholars.
- (g) The scholars must not be detained beyond the time prescribed for any school meeting, in order to receive instruction in any subject of the curriculum; and an interval of at least one hour must be provided between the morning and afternoon sessions, unless special permission for a shorter interval has been obtained from the Board of Education. Under no circumstances will an interval of less than half-an-hour be sanctioned.*

2. Character of School.—The arrangement of the Time-table will differ according as the school is for boys, girls, infants, or mixed; town or rural; half-time or full-time. In a mixed school the drawing or manual training of the boys should be taught at the same time as the needlework or cookery of the girls. It is often found advantageous to take the subjects essential for all in the morning, and to re-classify for alternative subjects in the afternoon; but in a half-time school this is generally impracticable, and the Time-table must then as a rule be duplicated, the same lessons being taught both morning and afternoon alike.

*Perhaps no regulation has been less observed than this one. It forbids the coaching of all backward children after school hours, and does not allow a school to count two attendances for one meeting of four hours.

3. Plan of Building.

- (a) In schools not built upon the separate classroom system (and this is the case with most rural schools) two or more classes must be taught in the same room, and thus it is obviously impossible to carry on work entirely upon the synchronous system, each class doing the same kind of work at the same time. The Time-table must therefore be arranged so that the lessons of adjoining classes will not interfere with each other. Two oral lessons should not proceed simultaneously; a quiet lesson, *e.g.*, Writing or Drawing, should be taken by one class, while another is occupied with an oral lesson such as Geography or Word-building, which may require some little but necessary noise, though this should of course be reduced to a minimum. Noisy lessons, such as Simultaneous Reading, Singing, repetition of Tables or Poetry, etc., are best taken in a classroom.
- (b) Under the separate classroom system of organisation an independent Time-table can be arranged for every class; but in mixed schools alternative subjects must be provided for as indicated under (2) above. Where classes are grouped or re-classified for any subjects, such as Drawing, History, Geography, Singing, etc., these subjects must be taken at the same time. It is generally advisable to take such lessons immediately after recreation, thereby facilitating the re-arrangement of the classes; but when this cannot be done the relative positions of the classes must be settled beforehand, and those which are likely to cross-classify should be placed near each other, so that the movement from class to class may take place as readily and noiselessly as possible.

4. Number and qualifications of the Staff.

- (a) The head teacher should be free at times to supervise the work of the school.
- (b) When a teacher has charge of two or more groups, the Time-table should be arranged so that one group is occupied with silent work while another is receiving oral instruction; while such subjects as Reading, Geography, or Object Lessons may be taken collectively.

- (c) If the Time-table does not show the classes and subjects entrusted to the pupil teachers, and the time given by the head teacher, during school hours, to their technical instruction in the Art of Teaching, these particulars should be entered in the Log Book.
- (d) No class should be left without supervision being provided for.
- (e) The most difficult lessons must be assigned to the most competent teachers, even if to some extent the teachers have to be transferred from class to class.

5. The Duration and Sequence of the Lessons will depend on the nature of the subjects and the kind of mental effort involved.

- (a) The time should be distributed according to the relative importance of the various subjects. Lower classes will require more time for Reading, Writing, Spelling, and Composition than for Grammar and Geography; in upper classes the reverse will generally be the case. Arithmetic will require about the same amount of time in all the classes.
- (b) The length of each lesson depends upon the mental strain involved, and the capability of the children to bear it without fatigue; hence it should be graduated to suit the age and capacity of the pupils. Each lesson should be long enough to give a maximum of benefit, but not so long as to produce weariness. Lessons may be longer for older than younger children; and in each case the morning lessons may be slightly longer than those in the afternoon. In infant schools no lesson requiring much mental effort should exceed 20 minutes in length; for older scholars the duration may vary from 30 to 50 minutes.
- (c) A complete change in the character of the work should be provided at proper intervals; hence no two lessons which require much mental effort of the same kind should occur in close succession; *e.g.*, Writing or Reading affords a relief after Arithmetic; an Object Lesson is a pleasant change after one on Grammar; while Drawing or Singing would furnish a change from either of these. Conversely it follows that Arithmetic, Grammar, Algebra, and Mensuration should not immediately succeed each other; neither should History and Geography; nor Writing and Drawing;

nor two oral lessons. A subject requiring continuous mental strain should alternate with one which relaxes the effort, and brings bodily activity into play. Speaking generally, the succession of lessons should as far as possible proceed from *difficult* to *simple*, and so as to afford the greatest variety.

Occasional change of posture is also desirable, so that physical relief with its consequent improved attention may be afforded; this may be obtained fairly well if two-thirds of the lessons are taken sitting, and one-third standing. The changes, however, should not be too frequent, and should be made with as little noise and disturbance as possible.

6. **Times of Assembly and Recreation.**—When a school consists of more than one department, it is generally advisable for the head teachers of the different departments to arrange that the times of assembly and recreation should be simultaneous for all. Usually the times of assembly will be the same; but where the intervals for recreation are at different times for separate classes or departments, much interference is almost certain to ensue, as each department in turn has to continue its work for some time every day with the noise of play outside.

7. **Summaries.**—The value of every Time-table is greatly increased by the addition of three or four short tables of summaries, showing:—

- (a) The number and quality of the staff, and the class or classes taught by each of its members.
- (b) A small table showing the different times when model and criticism lessons are given.
- (c) When home lessons are given, a list of subjects for each evening.
- (d) An Analysis of the Time-table showing the aggregate amount of time given by each class to every subject during the week.

DISTRIBUTION OF TIME.

1. **In Infant Schools.**—To some extent this will depend on the special circumstances of the school, as well as on the class itself. Assuming the school to meet from 9 to 12 in the morning, and from

2 to 4 in the afternoon, twenty-five hours per week are available for instruction. It should not be supposed, however, that these hours are to be exclusively occupied with lessons. The minimum time requirements for secular instruction in an infant school may be completed in three hours per day, or fifteen per week. Evidently, therefore, the twenty-five hours available may be appreciably shortened at the teacher's discretion; and this shortening will probably be best effected by providing for intervals of free play during school hours, and by a wide selection of recreative work, instead of by merely abridging the time spent in school.

Including an interval of about five minutes at the change of each lesson, to be spent in singing or physical exercises, the following may be taken as an approximate distribution of time for the highest classes in an infant school.

ANALYSIS OF A TYPICAL TIME-TABLE FOR INFANTS.

			Hours.	Mins.
1.	Religious Instruction, Prayers, etc.	...	2	5
2.	Registration ...	...	0	50
3.	Singing ...	...	2	5
4.	Object, Nature, or Conversation Lessons	.	1	40
5.	Reading and Spelling ...	...	3	20
6.	Arithmetic and Tables ...	...	3	20
7.	Kindergarten and Varied Occupations ...	.	3	20
8.	Writing ...	...	1	40
9.	Drawing (boys) or Needlework (girls) ...	.	2	30
10.	Recreation ...	...	2	5
11.	Drill ...	...	0	50
12.	Recitation ...	...	0	50
Total ...			24	35

Recitation and Drill may often be taken as alternative subjects; while on other occasions the drill may be taken to include kindergarten games, or marching and singing together.

The foregoing analysis endeavours to apportion the time among the various subjects according to their importance or difficulty; and it is evident that these considerations must also be taken into account with regard to the order of the lessons throughout the day.

Distributing the time in the manner just stated, the following may therefore be suggested as a convenient arrangement :—

Typical Time-table for an Infant Class.

MORNING.

8.50— 9.0	Assembly; children assisted in undressing; inspection of hands and boots, etc.
9.0 — 9.25	Hymn and Prayer; Religious instruction.
9.25— 9.40	Singing.
9.35— 9.40	Registration.
9.40—10.0	Conversation, Object or Nature lesson.
10.0 —10.20	Reading.
10.20—10.35	Play-time.
10.35—10.55	Arithmetic or Tables.
10.55—11.15	Drill and Recitation.
11.15—11.35	Writing.
11.35—11.55	Varied occupations.
11.55—12.0	Teacher assists infants to dress; Grace and dismissal.

AFTERNOON.

1.50—2.0	Assembly, etc.
2.0 —2.25	Arithmetic and Tables.
2.20—2.25	Registration.
2.25—2.55	Drawing (boys); Needlework (girls).
2.55—3.0	Play-time.
3.5 —3.25	Reading.
3.25—3.40	Singing, or Recitation, or Drill.
3.40—4.0	Kindergarten games or varied occupations.
4.0 —4.10	Teacher assists children to dress; Prayers and dismissal.

This Time-table could be followed daily, except that the following slight variations might be made with advantage: Where the girls learn drawing as well as the boys, the needlework need only be taken three times weekly, *viz.*, on Mondays, Wednesdays, and Fridays; some of the drawing lessons, again, may be devoted to free-arm or brush-drawing, while others are taken on slates or paper. During suitable weather, the nature lesson should be given in the open air once or twice per week, if facilities are available; "object" lessons (in the narrower meaning of the term) being taken more frequently in winter. As ~~reading follows the object lesson~~, it may often be based

upon it. A lesson on form and colour may be profitably substituted for the object lesson once a week, the particular day for this being specified on the Time-table.

Time-table for Babies.—It is evident that a Time-table adapted to the requirements of the highest class in an infant school, would scarcely be suitable for the babies' class, as the lessons here must be shorter, the work easier, and much more variety must be provided. Where arrangements can be made without disturbing the other classes, it is even advisable to begin at 9.30 instead of 9: for though lateness is a common fault with infants, it is almost unavoidable in the babies' class, and therefore it is preferable to begin at 9.30 with all the children present, than at 9 with half of them late.

The following is a suggested time-table for the lowest division of an infant school:—

MORNING.

9.20— 9.30	Assembly. Babies assisted in undressing. Hymn and Prayer.
9.30— 9.45	Singing, Bible Story, or Drill.
9.40— 9.45	Registration.
9.45—10.0	Letters made with stick-laying, coloured kindergarten strips, or on sand-trays.
10.0 —10.20	Conversational or Object Lesson.
10.20—10.35	Play-time. [This interval may be somewhat lengthened, if deemed advisable].
10.35—10.50	Bead-threading and counting.
10.50—11.5	Varied occupations; matching colours, paper-folding, or building.
11.5 —11.20	Sand-digging or gardening games.
11.20—11.35	Conversation, Singing, or Recitation.
11.35	Teacher assists babies to dress. Grace and dismissal.

So long as provision is made for secular instruction during one hour and a half at each meeting of the school after closing the registers, the times for assembly and dismissal can be fixed to suit special circumstances: and as it is shown above that the registers are closed at 9.45, the period of secular instruction required by the Code will be completed at 11.15, and thus it is not absolutely

necessary for the babies to remain until 12. If, however, it is considered advisable for them to remain (as in the case when elder brothers or sisters take care of them on their way home), the extra time should be spent in kindergarten games or free play.

The afternoon Time-table should be made as recreative as possible, and may be arranged somewhat on the following lines :—

AFTERNOON.

2.0 —2.25	Kindergarten Gifts.
2.20—2.25	Registration.
2.25—2.40	Nursery Rhymes and Action Songs.
2.40—2.55	Picture or Conversational lesson.
2.55—3.5	Play-time.
3.5 —3.20	Games with music, or Guessing Games.
3.20—3.35	Sand drawing or arranging shells.
3.35—3.50	Marching, Singing, or Kindergarten Games.
3.50—4.0	Teacher assists babies to dress. Hymn and dismissal.

An examination of these detailed arrangements will emphasise the following special considerations, which should be taken into account in drawing up a time-table for an infant school :—

- (1) Short lessons of twenty or twenty-five minutes should be given as a rule.
- (2) Each lesson should be followed by a short interval for singing or physical exercises.
- (3) An object or conversational lesson should be given daily.
- (4) A due proportion of time should be assigned to manual exercises and recreative employments.
- (5) Reading, writing, and number should be taught daily in some form or other.
- (6) Afternoon lessons should generally be of a more recreative character than those given in the morning.
- (7) A separate Time-table should be arranged for the babies' class.

2. In Upper Departments.—Circumstances vary so widely that it is impossible to lay down any definite limits for distributing the time among the various subjects of the curriculum which can apply to all schools uniformly. The district in which the school is situated, the number and qualifications of the staff, the plan of the school, and the class of children, are all varying factors which have

an important bearing on the arrangement of the subjects and the time which should be devoted to each. The following suggestions must therefore be taken simply as typical of the manner in which the time may be divided among the subjects in a school of average circumstances.

The course of instruction will generally comprise the following subjects:—English (including reading, recitation, writing, composition, and grammar), Arithmetic, Drawing, Needlework (for girls), Object lessons, Geography, History, Singing, Physical Exercises, and some additional subject chosen from the list given on page 102, according to its suitability to the circumstances of the school. It is thus apparent that in a school of average size and circumstances, the entire school-time will be distributed among thirteen or fourteen subjects; though in some cases one or more may be taken in addition to these. As most schools meet for $5\frac{1}{2}$ hours daily, there are altogether $27\frac{1}{2}$ hours per week available for instruction; and the problem before the teacher is to apportion this time among the various subjects of the curriculum with due regard to their importance and difficulty, so as to make the most of the available energy in the scholars and staff.

The following items should occur daily, and may therefore be disposed of first:—

- 9.0 — 9.30 Assembly; worship and religious instruction; inspection of hands and boots, etc.
- 9.30— 9.40 Singing. [It is generally advantageous to have a short practice of voice exercises or school hymns and songs at the beginning of each morning session; but if this is not taken, these ten minutes may be added to the Scripture lesson].
- 9.40— 9.45 Marking and closing Registers.
- 10.35—10.50 Recreation.

Somewhat similar details which occur every afternoon may be arranged in the following way:—

- 2.0 —2.10 Assembly. Inspection for cleanliness, etc.
- 2.10—2.20 Mental Arithmetic (three times a week), or Recitation (twice weekly).
- 2.20—2.25 Marking and closing Registers.
- 2.50—3.0 Recreation.
- 4.20—4.30 Hymn, Prayers and dismissal.

These details will be found to occupy $1\frac{1}{2}$ hours daily, or $8\frac{1}{2}$ hours in a week, leaving $18\frac{1}{2}$ hours for other subjects. In mixed schools the Drawing of the boys and the Needlework of the girls are most conveniently taken at the same time. From 2 to $2\frac{1}{2}$ hours weekly should be devoted to each of these subjects; and this time may best be arranged to cover two or three lessons of equal length. In most schools also, at least one drawing lesson, occupying from 30 to 45 minutes, must be provided for the girls. The Code requires that not less than one hour per week must be assigned to Physical Training in each class; and for this subject it is perhaps best to group the classes into two or three sections, allowing two half-hours' or three twenty-minutes' lessons weekly to each section. At least 20 minutes weekly should be devoted to Recitation in all classes (in addition to the provision already made for this subject), 20 minutes for songs, and 1 hour 20 minutes for Elementary Science or Object lessons, divided into two separate lessons of 40 minutes each. Grammar, Geography, and History should each be dealt with in two lessons of 40 minutes each weekly, while Reading may have 2 hours, and Spelling 30 minutes per week. A General Information lesson of 15 minutes per week may deal with important passing events, or points connected with the scholars' cleanliness and behaviour, etc. The total amount of time thus distributed is about $12\frac{1}{2}$ hours, leaving about $6\frac{1}{2}$ hours for Writing, Arithmetic, and some additional subject. Of this time, Arithmetic may occupy 3 hours, Writing (including Composition, Dictation, Transcription, and Copy-book lessons) may have $2\frac{1}{2}$ hours, and the remaining subject 1 hour per week. This extra subject may be Agriculture or Botany in a country school; a language, manual instruction, or some branch of Elementary Science in a town boys' school; cookery or laundry work in a girls' school; and must be selected with reference to its suitability to the district and the circumstances of the school and the scholars. The choice of the subject will necessarily have an important bearing on the amount of time that should be allotted to it; if more than one hour per week is required (as, for example, in the case of manual instruction or cookery, which require at least two hours weekly) extra time may be obtained by slightly diminishing the amount given to some of the other subjects.

Analysis of a Typical Time-table for Older Scholars.—The foregoing distribution of time may be arranged in the form of an approximate analysis as follows:—

	Hours.	Mins.
1. Religious Instruction, Prayers, Inspection for Cleanliness, etc.	4	10
2. Registration	0	50
3. Recreation	2	5
4. Drawing and Needlework	2	30
5. Physical Training	1	0
6. Recitation	0	40
7. Mental Arithmetic	0	30
8. Singing	1	10
9. Object Lessons and Elementary Science	1	20
10. Geography	1	20
11. History	1	20
12. Grammar	1	20
13. Reading	2	0
14. Spelling	0	30
15. Arithmetic	3	0
16. Writing and Composition	2	30
17. Extra Subject	1	0
18. General Knowledge	0	15
Total	27	30

Considered with reference to their comparative importance the foregoing subjects of instruction naturally fall into two groups. Arithmetic, Writing, Reading, Drawing, and Needlework form the more important group, and to these the larger proportion of time must be allotted; next follow Grammar, Geography, History, Object Lessons, and the remaining subjects of the curriculum. Another important consideration in this connection is the relative rate of progress made in different subjects; hence each class will not require the same amount of time for the same subject. For instance, a junior class will need more practice in Reading than a senior class, while the latter will probably need much more time for Arithmetic or Geography than Reading.

The time for any single subject may be amplified by a slight reduction from one or more of the others; some teachers, for example, would include Spelling with the time allotted to Reading, and thus add half an hour to some other subject; Writing, again, might be assigned only two hours per week; or History might be adequately taught in two half-hour lessons weekly. Various re-arrangements of the time are thus possible in order to suit different classes or special circumstances. It should also be observed that although, so far as the teacher is concerned, 50 minutes per week are assigned to Registration, this time may be added to any subject in the list so far as the pupils are concerned; the Extra Subject of the curriculum, for instance, might be considered to demand 1 hour 50 minutes; or

if it were dealt with in two lessons of 40 minutes each, 80 minutes could be added to the time devoted to General Knowledge or Arithmetic—preferably the former. Three-quarters of an hour devoted weekly to General Knowledge in each class is a valuable feature in the curriculum of any school; interesting lessons on current events and things in everyday life of which everybody ought to know something, can be given, as well as lessons intended to inculcate habits of politeness, cleanliness, and punctuality.

In the upper classes the time devoted to Reading should include one or two lessons each week in Silent Reading; and at least one special weekly lesson in penmanship should be included in the time set apart for writing.

3. In Higher Elementary Schools.—The following is a copy of a scheme relating to the arrangement of Time-tables in Higher Grade Schools, issued by the London County Council:—

HIGHER GRADE BOYS' SCHOOL.

<i>Time available, 9 to 12 and 2 to 5</i>	<i>= 30 hours a week.</i>
Registration (15 minutes daily)	= 1 hour 15 minutes a week.
Scripture (30 minutes daily)	= 2 hours 30 minutes a week.
Recreation 20'	= 1 hour 40 minutes a week.
	<hr/> 5 hours 25 minutes a week.

Time remaining for secular instruction—24 hours 35 minutes a week.

Minimum time for compulsory subjects:—

	Hours a week.
1. Arithmetic and Mathematics	3½
2. Experimental Science	2
3. English subjects (including Composition) ...	3½
4. History and Geography	2
5. One Foreign Language	2
6. Drawing	2
7. Systematic Physical Exercises... ..	1
	<hr/>
Total ...	16

This leaves 8 hours 35 minutes unallotted.

HIGHER GRADE GIRLS' SCHOOLS.

<i>Time available, 9 to 12 and 2 to 5</i>	<i>= 30 hours</i>
Registration, 10 mins. daily, say	= 1 hour a week.
Scripture (30 minutes daily)	= 2 hours 30 minutes a week.
Recreation	= 1 hour 40 minutes a week.
	<hr/> 5 hours 10 minutes a week.

Time remaining for secular instruction—24 hours 50 minutes.

Minimum time for compulsory subjects:—

	Hours a week.
1. Arithmetic and Mathematics	3
2. Experimental Science	2
3. English subjects (including Composition) ...	4½
4. History and Geography	2
5. One Foreign Language	2
6. Drawing	2
7. Systematic Physical Exercises... ..	1
8. Needlework	2
9. Singing	¾
Total ...	19

This leaves 5 hours 50 minutes unallotted.

Part of the unallotted time may be devoted to the compulsory subjects, while the remainder may be assigned to Cookery, Manual Instruction, and other subjects of the curriculum.

Faults in Time-tables.—These will generally be due to neglect of one or more of the principles already stated, and may thus be summarised:—

- (1) *Neglect of official regulations, e.g.,* omission of the time required for marking and closing registers, recreation, etc.
- (2) *Injudicious arrangement of the classes,* so that the lessons of one may interfere with those of another.
- (3) *Faulty distribution of the staff,* so that each teacher is not placed where his services are most advantageous.
- (4) *Wrong sequence of lessons,* so that subjects which require the same kind of mental effort closely follow each other; or the easier subjects are dealt with earlier in the day than the more difficult ones.
- (5) *Improper distribution of time,* some subjects receiving too much and others too little attention.
- (6) *Want of change of posture,* successive lessons requiring the scholars to remain in the same position.
- (7) *Needless complexity of arrangement,* especially when classes are grouped or scholars reclassified for certain lessons. As far as possible, simplicity of construction should be aimed at.
- (8) *Incompleteness,* due to omission of one or more particulars, such as the Analysis of the time-table; or neglect to specify when model and criticism lessons are given, etc.

Every care should be taken to make the Time-table as nearly perfect as possible, as *the use of ill-adjusted time-tables* is one of the faults of organisation for which the grant to a school may be reduced.

Approval of Time-tables.—Every Time-table must be approved on behalf of the Board of Education by H.M. Inspector, who thereby certifies that the arrangement of the lessons fulfils the requirements of the Elementary Education Act of 1870, Section 7 (sometimes called the “Conscience Clause”), which is as follows:—

“Every elementary school which is conducted in accordance with the following regulations shall be a public elementary school within the meaning of this Act; and every public elementary school shall be conducted in accordance with the following regulations (a copy of which regulations shall be conspicuously put up in every such school); namely,

- “(1) It shall not be required, as a condition of any child being admitted to or continuing in the school, that he shall attend or abstain from attending any Sunday school or any place of religious worship, or that he shall attend any religious observance or any instruction in religious subjects in the school or elsewhere, from which observance or instruction he may be withdrawn by his parent, or that he shall, if withdrawn by his parent, attend the school on any day exclusively set apart for religious observance by the religious body to which his parent belongs.
- “(2) The time or times during which any religious observance is practised, or instruction in religious subjects is given at any meeting of the school, shall be either at the beginning or at the end, or at the beginning and the end of such meeting, and shall be inserted in a time-table to be approved by the Education Department, and to be kept permanently and conspicuously affixed in every schoolroom; and any scholar may be withdrawn by his parent from such observance or instruction without forfeiting any of the other benefits of the school.
- “(3) The school shall be open at all times to the inspection of any of His Majesty’s Inspectors, so, however, that it shall be no part of the duties of such Inspector to inquire into any instruction in religious subjects given at such school, or to examine any scholar therein in religious knowledge, or in any religious subject or book.
- “(4) The school shall be conducted in accordance with the conditions required to be fulfilled by an elementary school in order to obtain an annual parliamentary grant.”

In approving any Time-table which fulfils these requirements, the Inspector will not interfere with its details beyond calling attention to what he may consider faults in its construction. He may perhaps suggest improvements in the distribution of work during the hours of secular instruction, but will very rarely insist on any change, as

the responsibility for the efficiency of the school and its arrangements rests entirely on the teachers and managers.*

Hence the only requirements necessary for obtaining the Inspector's approval of any Time-table are :—

- (1) That it conforms to Section 7 of the Elementary Education Act of 1870.
- (2) That a copy of the regulations contained in this section of the Act is conspicuously exhibited in the school.

Inspection of Time-table by Parents.—The parent of any scholar has a legal right to inspect the approved Time-table at any reasonable time, *except during the ordinary school hours*, on making a written application to do so.

Alterations in Time-tables.—As a general rule, the Time-table should be settled at the beginning of the school-year, and when once approved it ought to be strictly adhered to. Frequent changes in the order of lessons are liable to seriously interfere with the work of the school; and at the same time they indicate a lack of thought and skill in the original construction of the Time-table.

No alteration of the Time-table which affects the time devoted to religious instruction can be made without the express sanction of H.M. Inspector; and this will not be given during the course of the school year, except upon formal application from the Managers, nor unless strong grounds for the change are shown. Any neglect of this division of the Time-table will entail a forfeiture of the Grants.

With respect to secular instruction, occasional deviations are allowed to the teacher, *provided that the changes are noted in the log book*; but permanent alterations require the formal sanction of the Managers, a special note of the change being made by the correspondent in the log book, and a copy of the corrected Time-table being put up in the school. Where the alterations are numerous, it is generally advisable to obtain the approval of the Inspector.

When the school premises admit of it, secular instruction should be given to those children who are withdrawn by their parents from religious observances or instruction, during the time prescribed for these subjects on the Time-table. This may generally be arranged for by means of a classroom.

* Thus the Inspector's "approval" does not necessarily indicate that the time-table is a satisfactory one to work by.

The Board of Education requires that physical training should be given, whenever reasonably possible, in the open air; and when the lesson is prevented by bad weather, a simple transposition may be made in the Time-table to enable physical training to be given in the open air on the next favourable occasion.

At any visit paid to the school without notice, the Inspector is required to report to the Board of Education if he finds that the work of the school is not being conducted in accordance with the approved Time-table, or that the Time-table itself is not conspicuously exhibited in every schoolroom. For purposes of inspection the Time-table may be varied within reasonable limits by the Inspector at any visit, provided that the school arrangements are not thereby seriously disturbed.

Advantages of a good Time-table.—The teacher's ability as an organiser can be fairly estimated by an examination of his Time-table and Schemes of Instruction, and the regularity with which these are complied with. It is a duty which he owes to himself that he may not waste his time and energies; it is a duty which he owes to his pupils and their parents that every moment spent in school shall be utilised to the best advantage; and it is evident that with a distinct and regular plan of work both he and his scholars can do more, and do it with greater economy of effort, than without one.

Most of the advantages arising from the use of a well-arranged Time-table have been indicated in the preceding sections; it will therefore be sufficient here briefly to enumerate them:—

- (1) The time and energies of both teachers and scholars are utilised to the best advantage.
- (2) Thoroughness of work is ensured, and spasmodic effort banished.
- (3) Weariness and over-strain on the part of the children are prevented, change of lessons and recreation being provided at the proper time.
- (4) Order and discipline are maintained by having a fixed arrangement of lessons for each day, all uncertainty and anxiety being thus removed.
- (5) The regular and systematic habits of work enforced by the Time-table have a beneficial effect on the children after leaving school.
- (6) The whole work and organisation of the school are shown in a brief and convenient form.

The circumstances of schools vary so widely that no Time-table could be constructed to satisfactorily meet the requirements of many; in fact, it will often be found that a Time-table which is well adapted for working in one school is quite unsuited to the conditions of another. Hence it is

scarcely necessary here to give complete specimens of Time-tables; students are advised instead to carefully examine those in use in their own schools, with a view to ascertaining how far they bear out the principles already laid down, and the reasons for assigning the order of sequence and time devoted to the respective subjects in the curriculum.

EXAMINATION QUESTIONS.

1. What are the principal points to which you would pay special attention in drawing up a Time-table for an Elementary School?

2. Under what circumstances is it advisable to teach all the classes in a school the same subjects at the same time? In what order would you propose to teach Reading, Writing, and Arithmetic during the day, and why?

3. What difference should be made in the curriculum, and in the general arrangement of the hours of study, between a higher elementary school in a thriving artisan neighbourhood, a mixed rural school, and a town school largely attended by the children of poor labourers?

4. What are the principal advantages of having a good Time-table?

5. How much time per week should be given to each of the Elementary Subjects (reading, writing, and arithmetic), and to singing, drawing, sewing, geography, and grammar respectively, in a mixed school where instruction in music is given by note? What other subjects should be provided for in the Time-table of (a) an average-sized town school; (b) a small village school? Give reasons for your answer.

6. What special considerations should be taken into account in drawing up a Time-table for infants?

7. Why are Time-tables necessary in a school, and on what principles should they be constructed?

8. Draw up a Time-table for a school of 250 infants, and give an analysis showing the amount of time devoted to each subject.

9. Make out a Time-table for a week's work in the highest division of a school.

10. What are the commonest difficulties met with in drawing up a Time-table?

11. Enumerate the chief points necessary to be considered with respect to the length and succession of lessons in school.

12. Draw up a Time-table for a week for the highest form of a school, in which two class subjects are taken, specifying at the foot your reasons for assigning to the closing hours of the morning and evening school the special lessons you have selected for those hours.

13. In either (a) a mixed school of older scholars, or, (b) an infant school, say how you would distribute the various kinds of study and exercise over 25 or 30 hours a week.

14. In a school containing 200 scholars and seven classes, how would you distribute the work of a single day among the several subjects of instruction, and among a staff consisting of yourself, two assistants, and three pupil teachers?

15. Give a summary of the commonest faults to be avoided in drawing up a Time-table.

16. Why is an Inspector's approval necessary before a Time-table can be regularly used in school? Under what circumstances may alterations be made in a Time-table which has previously been approved?

17. Draw up a Time-table for one of the following cases:—

(1) A small rural school: [Average attendance, 50; accommodation, a single room; staff, one certificated teacher (with sewing mistress, when the school is under a master)].

(2) The Junior Department (three lower classes) of a town school: [Number of children in this department, 115; accommodation, one large room and two classrooms; staff, one certificated teacher, one assistant, and one pupil teacher].

(3) An Infant School: [Average attendance, 120; accommodation, classrooms, fittings, and apparatus, excellent. You may state what staff you would here consider most suitable.]

N.B.—Before writing out your Time-table, give preliminary notes showing: (a) The subjects you mean to take up, with the number of hours per week to be devoted to each; (b) Your reasons for this selection, and for this appointment of the time; (c) Your reasons for the sequence of the subjects in the day's routine.

18. In drawing up a Time-table for older scholars, what amount of time should you assign to drill, and how would you distribute it? Give reasons for your answer.

19. Under what circumstances may parents inspect the Time-table of a school, and why may this right of inspection be considered permissible?

20. Draw up a Time-table:—

Either for one day's work in a small mixed country school, the staff of which consists of one certificated teacher and a supplementary teacher, showing how you would distribute the work between them;

Or for one day's work of a class of 50 scholars who have attended a school for older children during three consecutive years;

Or for one day's work for a class of infants between the ages of five and seven.

CHAPTER VII.

SCHOOL BUILDINGS.

WHILE it is scarcely probable that a teacher's opinion will often be consulted in the designing or planning of his school, it is nevertheless advisable for him to have some knowledge of the more important requirements in these respects. Such information may often prove valuable in helping to point out defects in the construction of the school over which he has charge, or in modifying existing arrangements with a view to improvement.

Every school should be designed to suit the work which is to be done in it; hence, before the school is built, special attention must be directed to the following points:—

- (a) **Situation.**—The school site must be healthy, fairly elevated, and well drained, and the surroundings as cheerful as possible. Wherever practicable the building should be isolated from other structures, and a sunny aspect should be chosen. The close vicinity of higher buildings or of trees, preventing free access of air and light, should therefore be avoided as much as possible.
- (b) **Size.**—The size of the school will necessarily depend mainly upon the attendance expected; but although it is generally advisable to make some allowance for future increase in the number of children, no school should ordinarily be built to accommodate more than 1,000 to 1,200 children in three departments, and no single department should accommodate more than 400 children.
- (c) **Accommodation.**—The total accommodation must be determined according to the building rules of the Board of Education; *but the minimum requirements should be greatly exceeded*
- (d) **Plan.**—The plan of the building as a whole, and the size, shape, and number of the rooms, will depend principally upon the staff to be employed, and the desk arrangement to be adopted.
- (e) **Ventilation, Warming, and Lighting** of the school. Every endeavour must be made to render the arrangements for these as perfect as possible.

All new school premises, and all enlargements to schools, must conform generally to the Building Rules of the Board of Education before such new premises and enlargements are sanctioned. The number of scholars for which such new premises and enlargements are to be considered sufficient will be settled by the Board, and will generally be calculated in accordance with these Building Rules; and *no room may be habitually used for a larger number of scholars than that for which it was originally sanctioned.*

School planning is the science of thoroughly adapting every part of a building, even the minutest detail, to the work of school teaching.

The following rules are to be regarded as embodying the result of the experience of the Board of Education in the planning and fitting up of Public Elementary Schools. They are intended to show school managers and their architects what the Board deem essential in the construction and design of school buildings, but in other respects they are not meant to restrict liberty of treatment.

Every part of a school building should be thoroughly adapted to the work of school teaching. Such a building, therefore, must be provided with an ample playground, must be of sufficiently solid construction, suitably lighted and warmed, and thoroughly ventilated without draughts. It must have a sufficient number of entrances, and adequate cloak-room accommodation; scrupulous care must be devoted to sanitary arrangements, which are here as vital as in a hospital. The Rules which deal with these matters express in each case the principles to which the Board of Education will expect all new buildings to conform.

The remaining Rules are intended to aid in the production of buildings which shall be compact, properly sub-divided for class teaching, conveniently arranged for effective supervision by the principal teacher, and for the movement of the children from the entrances to the classrooms or from one classroom to another. They also indicate how to obtain the most economical school building.

No school should ordinarily be built to accommodate more than 1,000 to 1,200 children in three departments. No single department should accommodate more than 400 children. A large school in three departments might conveniently be divided in the following proportions: Boys, 360; girls, 360; infants, 380. For departments of this size the most suitable plan is that of a central hall with the classrooms grouped round it; as a rule, such a department would

probably require seven classrooms. Smaller departments may be planned conveniently with the classrooms opening from a corridor. For small schools a large room with one or more classrooms will be sufficient. There should always be at least one classroom, except in special cases.

Where the site is sufficiently large, open, and fairly level, the most economical plan is that of school on a single floor. Such an arrangement is also preferable on educational grounds. In any case it is desirable that a school building should not be on more than two floors. A building on three floors is open to many objections, and should only be proposed in special circumstances, or on very costly sites.

Before instructing an architect, managers are recommended to have careful regard to the size and circumstances of the school, and to the number and qualifications of the staff to be employed. These conditions will determine approximately the method of grouping the scholars for instruction, and on this will depend the number and the accommodation of the rooms of which the school building should consist.

In every case, moreover, the *annual cost of maintenance* should be borne in mind as well as the initial capital expense.

Rules to be observed in Planning and Fitting up Public Elementary Schools, issued by the Board of Education.

I. Planning.—Every school must be planned so that the children can be seated in the best manner for being taught. The rooms must be grouped compactly and conveniently, so as to secure proper organisation and supervision. It is important to remember that the accommodation of every room depends not merely on its area, but also on the lighting, the shape of the room (especially in relation to the kind of desk proposed), and the position of the doors and fireplaces.

The doors and fireplaces should be arranged so as to allow the whole of one side of any room to be left free for the groups of desks.

II. Central Halls.—A Central Hall should have a floor-space of about $3\frac{1}{2}$ but not exceeding 4 square feet for each scholar for whom the school is recognised. The Hall must be fully lighted, warmed, and ventilated.

- (a) A single Central Hall may be provided for the joint use at separate times, of two departments, provided that it is so placed as to be readily accessible from the classrooms of each department.
- (b) Where outdoor space is not available, physical training should be given in the Central Hall (or Corridor). This purpose should be taken into consideration at the time when the building is planned. Since fixed gymnastic apparatus is unsuitable for children under 14 years of age, a separate gymnasium is not required, and cannot be approved.

III. Corridors.—Large schools not built with a Central Hall must be provided with a wide Corridor giving access to the rooms.

A Corridor should be fully and directly lighted and ventilated, and from 8 to 12 feet wide, according to the size of the school. Two or three of the rooms ought to be separated only by movable partitions, in order to secure flexible working.

IV. Schoolrooms.—A schoolroom should never be designed for more than 120 children, and a room of even smaller size is desirable. The proper width is from 18 to 22 feet, according to the kind and arrangement of the desks (Rule XV.); but very small schoolrooms need not be more than 16 feet wide.

No schoolroom lighted from one side only can be approved. The gable ends should be fully utilised for windows, and there should be no superfluous windows opposite the teacher.

A schoolroom which has no classroom attached should not contain more than 600 square feet of floor space.

V. Classrooms.—The number of classrooms should be sufficient for the size and circumstances of the school.

- (a) The classrooms should never be passage-rooms from one part of the building to another, nor from the schoolrooms to the playground or yard. Both schoolrooms and classrooms must have independent entrances. Every room should be easily cleared without disturbance to any other room.
- (b) A classroom should not be planned to accommodate more than from 50 to 60 children; but in special cases somewhat larger rooms may be approved. The minimum size is 18 feet by 15 feet, but if the desks are arranged parallel to the longer side of the room, the width should be not less

than 16 feet. In the absence of supplementary light the measurement from the window-wall in a room 14 feet high should not exceed 24 feet 8 inches.

VI. Accommodation.—The accommodation of a school for older scholars is based upon the number of children who can be seated at the desks, arranged in accordance with Rule XV., provided that a minimum of 10 square feet of floor space per child is obtained.

A Central Hall will not be counted in the accommodation, nor will a classroom for Cookery, Laundry, Manual Instruction, Drawing, or Science.

VII. Walls, Floors, and Roofs.—The walls of every room used for teaching, if ceiled at the level of the wall plate, must be at least 12 feet high from the level of the floor to the ceiling; if the area of the room exceed 360 square feet the height must be not less than 13 feet, and, if it exceed 600 square feet then the height must be at least 14 feet.

- (a) The walls of every room used for teaching, if ceiled to the rafters and collar beam, must be at least 11 feet high from the floor to the wall plate, and at least 14 feet to the ceiling across the collar beam.
- (b) Great care should be taken to render the roofs impervious to cold and heat.
- (c) Roofs open to the apex are very undesirable. They can only be permitted where the roofs are specially impervious to heat and cold, and where apex-ventilation is provided. Iron tie-rods are least unsightly when placed horizontally.
- (d) The whole of the external walls of the school and residence must be solid. If of brick, the thickness must be at least one brick and a half; and, if of stone, at least 20 inches; where hollow walls are proposed, one portion must have the full thickness required for a solid wall.
- (e) All walls, not excepting fence walls, should have a damp-proof course just above the ground line.
- (f) The vegetable soil within the area of the building should be removed, the whole space covered by a layer of concrete not less than 6 inches thick, and air bricks inserted in *opposite* walls to ensure a through current of air under floors for ventilation to joists.
- (g) Timber should be protected from the mortar or cement by asphalt or tar.

VIII. Entrances.—Entrances should be separate for each department and for each sex. In large schools more than one entrance to each department is desirable. (*See also* Rule IX.) The principal entrances should never be through the cloak-room. Entrance doors should open outwards as well as inwards. A porch should be external to the schoolroom. An external door, having outside steps, requires a landing between the door and the threshold.

IX. Staircases.—There must be separate staircases for each sex and each department. Every staircase must be fire-proof, and external to the halls, corridors, or rooms. Triangular steps or "winders" must not be used. Each step must be about 13 inches broad and not more than $5\frac{1}{2}$ to 6 inches high. The flights must be short and the landings unbroken by steps. The number of staircases must be sufficient not only for daily use, but also for rapid exit in case of fire or panic. For any upper floor accommodating more than 250 a second staircase is essential.

X. Cloak-rooms and Lavatories.—Cloak-rooms should not be passages, and should be external to the schoolrooms and classrooms, with gangways at least 4 feet wide between the hanging-rails, and amply lighted from the end. They should not be placed against the gable wall (*see* Rule IV.). The hanging-rail should be arranged so that the children can enter and leave the cloak-room without confusion or crowding. Hat pegs should be 12 inches apart, numbered, and of two tiers. The lineal hanging space necessary to provide a separate peg for each child is thus 6 inches.

Thorough ventilation is essential, so that smells are not carried into the school.

Lavatory basins are needed (*see* Rule XIV. (h)). Girls' schools require a larger number than boys' or infants'.

A lock-up slop sink, water-tap, and cupboard are desirable for the caretaker.

XI. Lighting.—Every part and corner of a school should be fully lighted. The light should, as far as possible, and especially in classrooms, be admitted from the left side of the scholars. (This rule will be found greatly to influence the planning, *see* Rules IV., XI. (b) and XII. (a). All other windows in classrooms should be regarded as supplementary or for ventilation. Where left light is impossible, right light is next best. Windows full in the eyes of teachers or scholars are under no circumstances approved. In rooms 14 feet

high, any space beyond 24 feet from the window-wall is insufficiently lighted. (*See* Rule V. (c).)

- (a) Windows should never be provided for the sake merely of external effect. All kinds of glazing which diminish the light and are troublesome to keep clean and in repair, must be avoided. A large portion of each window should be made to open for ventilation and for cleaning.
- (b) The sills of the main lighting windows should be placed not more than 4 feet above the floor; the tops of some windows should reach nearly to the ceiling, with a portion made to swing. The ordinary rules respecting hospitals should here be remembered. Large spaces between the window heads and ceiling are productive of foul rooms.
- (c) Skylights are objectionable. They cannot be approved in schoolrooms or classrooms. They will only be allowed in Central Halls having ridge or apex ventilation.
- (d) The colouring of the walls and ceilings and of all fittings in the rooms should be carefully considered as affecting the light. This point and the size and position of the windows are especially important in their bearing on the eyesight of the children.

XII. Ventilation.—The chief point in all ventilation is to prevent stagnant air; particular expedients are only subsidiary to this main principle.

Apart from open windows and doors there must be provision for copious inflow of fresh air, and also for the outflow of foul air at the highest point of the room. The best way of providing the latter is to build to each room a separate air chimney carried up in the same stack with smoke flues. An outlet should be by a warm flue or exhaust, otherwise it will frequently act as a cold inlet. Inlets are best placed in corners of rooms furthest from doors and fireplaces, and should be arranged to discharge upwards into the room. Gratings in floors should never be provided. Inlets should provide a minimum of $2\frac{1}{2}$ square inches per child and outlets a minimum of 2 inches. All inlets and outlets should be in communication with the external air.

Besides being continuously ventilated by the means above described, rooms should as often as possible be flushed with fresh air, admitted through open windows and doors. Sunshine is of particular

importance in its effects on ventilation, and also on the health of children.

- (a) Although lighting from the left hand is considered so important, ventilation demands also the provision of a small swing window as far from the lighting as possible, and near the ceiling.

XIII. Warming.—The heat should be moderate and evenly distributed so as to maintain a temperature of from 56 degrees to 60 degrees. When a corridor or lobby is warmed, the rooms are more evenly dealt with and are less liable to cold draughts. Where schools are wholly warmed by hot water, the principle of direct radiation is recommended. In such cases open fireplaces in addition are useful for extra warming on occasions, and their flues for ventilation always.

- (a) A common stove, with a pipe through the wall or roof, can under no circumstances be allowed. Stoves are only approved when—
 - (i.) provided with proper chimneys (as in the case of open fires);
 - (ii.) of such a pattern that they cannot become red hot, or otherwise contaminate the air;
 - (iii.) supplied with fresh air, direct from outside, by a flue of not less than 72 inches superficial; and
 - (iv.) not of such a size or shape as to interfere with the floor space necessary for teaching purposes.
- (b) A thermometer should always be kept hung up in each room.
- (c) Fireplaces and stoves should be protected by fireguards.

XIV. Sanitary Arrangements.—Water-closets within the main school building are not desirable, and are only required for women teachers. All others should be at a short distance and completely disconnected from the school. Privies should be fully 20 feet distant.

- (a) The latrines and the approaches to them must be wholly separate for the two sexes. In the case of a mixed school this rule especially affects the planning. Passages or corridors should not be used by both sexes; where such an arrangement is unavoidable, there must be complete supervision from the classrooms by sheets of clear glass.

- (b) Each closet must not be less in the clear than 2 feet 3 inches wide, nor more than 3 feet, fully lighted and ventilated, and supplied with a door. The doors should be at least 3 inches short at the bottom and at least 6 inches short at the top. More than one seat is not allowed in any closet.
- (c) The children must not be obliged to pass in front of the teacher's residence in order to reach their latrines.
- (d) The following table shows approximately the number of closets needed—

	For Girls.	For Boys.	For Infants.
Under 30 children	2	1	2
50			
70			
100			
150			
200			
300			

There should be urinals in the proportion of 8 feet per 100 boys.

- (e) Earth or ash closets of an approved type may be employed in rural districts, but drains for the disposal of slop and surface water are necessary. Cesspits and privies should only be used where unavoidable, and should be at a distance of at least 20 feet from the school. The proximity of drinking wells should be carefully avoided.
- (f) Soil-drains must always be laid outside the building (on a hard even bottom of concrete) in straight lines with glazed stoneware pipes, carefully jointed in cement and made absolutely water-tight. A diameter of 4 inches is sufficient except for drains receiving the discharge of more than 10 closets, when the diameter should be 6 inches. The fall should never be less than 1 in 30 for 4-inch, and 1 in 40 for 6-inch drains. An inspection opening or chamber should be provided at each change of direction, so as to facilitate cleansing the drain without opening the ground. Every soil-drain must be disconnected from the main sewer by a properly constructed trap placed on the line of drain between the latrines and the public sewer. This trap must be thoroughly ventilated by at least two untrapped openings; one being the 4-inch soil pipe carried up full size above the roof, and the other an inlet pipe connected with

the side of the trap furthest from the public sewer. Automatic flushing tanks are desirable where trough closets are used.

- (g) Urinals must in all cases have a sufficient supply of water for flushing.
- (h) Waste pipes from sinks or lavatories should be first trapped inside, and then made to discharge direct through an outer wall over a trapped gully.

XV. Desks.—Seats and desks should be provided for all the children, graduated according to their ages, and placed at right angles to the window wall. (*See also Rules IV. and XI.*) The seats should be fitted with backs.

An allowance of 18 inches per scholar at each desk and seat will suffice (except in the case of the dual desk), and the length of each group should therefore be some multiple of 18 inches, with gangways of 18 inches between the groups and at the walls. In the case of the dual desk the usual length is 3 feet 4 inches, and the gangways 1 foot 4 inches.

- (a) No desks should be more than 12 feet long. In an ordinary classroom five rows of long desks or six rows of dual desks are best; but in a schoolroom or room providing for more than 60 children, there should not be more than four rows of long desks or five rows of dual desks.

If a schoolroom is 18 feet wide, three rows of long desks or four of dual desks may be used; if the width is 22 feet, the rows may be four and five respectively.

Long desks should be so arranged that the teacher can pass between the rows. Where dual desks are used this is not necessary, as the gangways give sufficient access.

- (b) The desks should be very slightly inclined. An angle of 15° is sufficient. The objection to the flat desk is that it has a tendency to make the children stoop. A raised ledge in front of a desk interferes with the arm in writing. The edge of the desk when used for writing should be vertically over the edge of the seat.
- (c) Single desks are not necessary in an ordinary public elementary school, and cannot be approved.

XVI. Sites and Playgrounds.—Every school must have an open airy playground proportioned to the size and needs of the school, and the site should, if possible, have a building frontage in proportion to its area. A site open to the sun is especially valuable for the children, and important in its effects on ventilation and health. The minimum size of site is, in the absence of exceptional circumstances, a quarter of an acre for every 250 children, irrespective of the space required for a teacher's or caretaker's house, or for a Cookery or other Centre. If the school is of more than one storey this area may be proportionately reduced; but a minimum unbuilt-on or open space of 30 square feet per child should be preserved.

- (a) In the case of a Mixed School of large size, playgrounds should be separate for boys and girls, and should, where practicable, have separate entrances from the road or street.
- (b) All playgrounds should be fairly square, properly levelled, drained, and enclosed. A portion should be covered, having one side against the boundary wall. A covered-way should never connect the offices with the main building; buttresses, corners, and recesses should be avoided.
- (c) An infants' school should have its playground on the same level as the school, and a sunny aspect is of special importance.

XVII. Infants' Schools.—Infants should not, except in very small schools, be taught in the same room with older children, as the methods of instruction suitable for infants necessarily disturb the discipline and instruction of the other scholars. Access to the infants' room should not be through the older children's schoolroom.

- (a) The partition between an infants' room and any other school-room should be impervious to sound, and there should be no habitual means of direct communication other than an ordinary door.
- (b) An infants' school and playground must always be on the ground floor.
- (c) No infants' classroom should accommodate, as a rule, more than 60 infants.
- (d) A space in which the children can march and exercise should be provided. A corridor intended for this purpose should not be less than 16 feet wide.
- (e) The babies' room should always have an open fire, and should be maintained at a temperature of not less than 60°

- (f) In infants' schools an allowance of 16 inches per child at long desks will be sufficient. Dual desks should be 3 feet long.
- (g) The accommodation of an infants' school is based upon the number of children who can be seated at the desks, provided that a minimum of 9 square feet of floor space per child is obtained.

XVIII. Rooms for Cookery, Manual Instruction, etc.—As a rule, a single room for Cookery, or Laundry-work, or Manual Instruction, or Science, or Drawing, will serve for more than one school if provided as a Centre in a convenient position. Every such Centre should have its own lavatory and cloak-room.

Large schools, or schools of an exceptional type, may sometimes require special rooms for their exclusive use.

- (a) *Cookery*.—A Cookery-room should be capable of accommodating 12 to 18 at practice, or 36 to 54 at demonstration at any one time. The larger size will require 750 superficial feet and 10,500 cubic feet. Provision for instruction in scullery work is necessary.

The sink should be placed in full view of the teacher and children, and should be fitted with a cold water supply and a waste pipe.

There should also be a gallery or raised platform with desks to accommodate 36 to 54 children, according to the size of the room.

The floor space for practical work should afford about 20 square feet for each scholar, and should not be encumbered with desks, cupboards, or stoves.

In Cookery-rooms the ventilation needs special arrangements. Where a gas stove is used, it may be necessary to have a pipe fixed to carry off noxious fumes. The temperature should not be allowed to rise above 70 degrees.

The apparatus for lessons in cookery should include such stoves and other appliances as are usually found in the homes of the children.

- (b) *Laundry Work*.—A Laundry should be of simple construction and entirely apart from the ordinary school buildings.

The proper size for a Laundry is about 750 square feet. It should have a gallery or raised platform with desks for 42 children.

Laundry tables should be large enough to allow at least three feet of space for each child when ironing.

The ventilation of rooms for laundry-work needs special arrangements.

- (c) *Manual Instruction*.—In its plan, arrangements, construction, lighting, and ventilation, a Manual Instruction room should be modelled on a workshop rather than on a school. The construction should accordingly be simple. The roof may be either of lean-to or other ordinary form, according to circumstances. Its height at the windows in front of the benches need not be more than ten feet. The light must be ample. The temperature should not be so high as in an ordinary classroom. A flat ceiling is not, as a rule, necessary. Ample ventilation should be provided by inlets at a height of five feet from the floor, and by outlets at the highest point.

- (d) *Science-room*.—A room suitably fitted for elementary practical work in Science may be provided for the use of one large or several contributory schools. Such a Science-room should not, as a rule, contain more than 600 square feet of floor space. It should be fitted with strong and plain tables, sinks, cupboards, and shelves, and where necessary, a fume closet. A proper supply of gas is necessary.

In addition to a Science-room, one of the ordinary classrooms may be fitted with a simple demonstration table and gas and water supply. But a special lecture-room cannot be approved in an ordinary public elementary school.

- (e) *Drawing Classrooms*.—A Drawing Classroom can only be sanctioned where it is likely to be used for a reasonable time every week by the scholars from one large or several contributory schools. A suitable size for such a room is 600 square feet of floor space.

XIX. Higher Elementary Schools.—For a Higher Elementary School accommodating from 300 to 350 scholars, 10 classrooms will generally be required, since every class should have its own classroom. No classroom should accommodate more than 40 scholars.

- a) —(i.) The classrooms may be furnished with single or dual desks as may be desired. Single desks should be two feet long, arranged in pairs with intervals of two inches and gangways of two feet.

(ii.) If single desks are adopted, a classroom should have an area of about 16 square feet per scholar. Classrooms fitted with dual desks need not be so large, but a minimum of about 13 square feet per scholar will be required.

(b) Every Higher Elementary School should be provided with suitable laboratories.

(i.) The laboratory accommodation must be sufficient to provide at one time for the largest class in the school.

(ii.) There should generally be one laboratory for chemistry and one for physics.

(iii.) A laboratory should afford 30 square feet of floor space for each scholar; the minimum size will therefore be 600 square feet, but it is as a rule desirable that the laboratory should be somewhat larger. If, however, the laboratory accommodates more than 25 scholars a second teacher would be required.

(iv.) Laboratories must be fitted with suitable tables, which must be well lighted; they should be properly supplied with gas and water. For chemical laboratories, sinks, cupboards, and the necessary fume closets must be provided.

(v.) A small balance room may be provided if desired.

(c)—(i.) In addition to the classrooms and laboratories a Higher Elementary School may include a lecture-room, which should be fitted with (1) a demonstration table finished with a gas and water supply, and a sink, and (2) a fume closet. A lecture-room should have an area of about 750 square feet.

(ii.) If no separate lecture-room is provided, each of the classrooms used by the third and fourth years should be fitted with a simple demonstration table.

(iii.) A small preparation room, fitted with bench, sink cupboard and shelves, and proper supply of gas should be provided in a convenient position.

(d) A drawing classroom for the more advanced drawing is desirable. It should provide 30 square feet of floor space for each scholar; the best size will be a room with an area of 750 square feet. If suitably lighted, the Hall would answer for this purpose.

- (e) Other special rooms for Cookery, Laundry-work, and Manual Instruction should be provided in accordance with Rule XVIII.
- (f) A Higher Elementary School should be planned with a Central Hall; but no class, other than drawing, can be recognised in such a hall. Good dimensions for such a hall would be 50 feet by 25 feet.

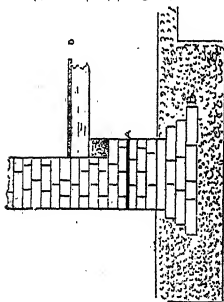
In addition to the foregoing official regulations, the following details may be noted with advantage:—

1. Walls.—The foundations should in all cases be laid in concrete, and the space beneath the lowest floor freely ventilated by air-bricks or openings sufficient in number to allow a free through current of air; this precaution will prevent rotting of the floor joists and boarding. Below, and for some distance above the ground line, walls should be double, the space between being ventilated by air bricks when necessary. This space is called a "Dry Area." In order to prevent moisture from rising into the walls above the ground level, they must be provided with a *damp-proof course*. This consists of a layer of some impervious material carried through the whole thickness of the walls slightly above the highest point at which the ground is touched; the materials commonly used being (1) sheet lead; (2) asphalt laid about an inch thick; (3) two or three layers of ordinary roofing slate, bedded in cement; or (4) perforated glazed stoneware tiles. Various arrangements of dry areas and damp-proof courses are shown on the following page.

The outer walls of a school are also liable to become damp from rain beating against them during wet weather, from the overflow of defective spouts and roof-gutters, from rain falling on window sills which do not project sufficiently, and from other causes. The remedy is to remove the cause in each case; but the dryness of the inner surface is best secured by building all outer walls double, with a hollow space of about two or three inches between the walls, which should be tied together with a sufficient number of "bonding ties" of iron, glazed stoneware, or other non-absorbent material. The cavity should in all cases be well-ventilated, and should not communicate with the inside of the room at any point. Sometimes the cavity is filled in as the wall is being built, with asphalt or slate, thus forming a *vertical* damp-proof course. A covering of ivy on the outside wall also serves as an additional protection.

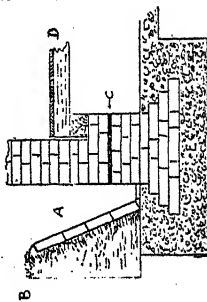
1. Section of a Wall.

- A = damp-proof course.
 B = wall footing.
 C = bed of concrete.
 D = floor level in room.



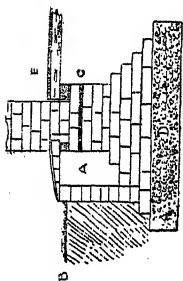
3. Section of a Wall.

- A = dry area above floor level D inside.
 B = ground level outside.
 C = damp-proof course.
 E = a concrete bed.



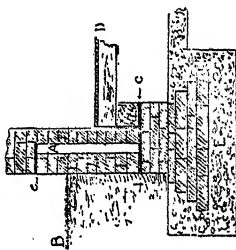
2. Section of a Wall.

- A = dry area under ground.
 B = ground level.
 C = damp course.
 D = concrete bed.
 E = floor level in room.

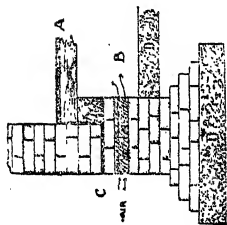


4. Section of a Wall.

- A = dry area in the middle of the wall.
 B = ground level outside.
 C = upper & lower damp courses.
 D = floor level inside room.
 E = concrete bed.

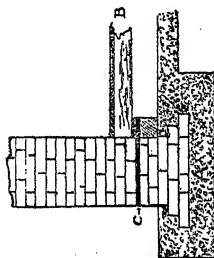


DAMP-PROOF COURSES AND DRY AREAS.



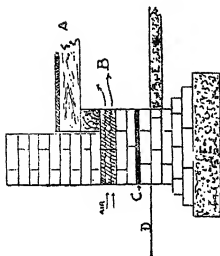
Section of Wall.

- A = floor level.
B = air bricks.
C = damp course.
D = concrete bed.



Section of Wall.

- A = concrete bed.
B = floor level inside room.
C = damp course.



Section of Wall.

- A = floor level.
B = air bricks.
C = damp course.
D = ground level.
E = concrete bed.

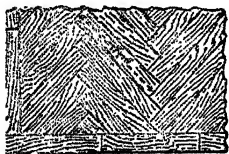


B = View of Air Brick.

METHODS OF FLOOR CONSTRUCTION FOR ENSURING DRYNESS.

The inner surface of the school walls must be level and smooth, and no unnecessary ledges or mouldings should be permitted, as these are apt to harbour dust. In both schoolrooms and classrooms the lower part of the walls should be boarded, lined with glazed tiles or bricks, or painted, to a height of about five feet, and coloured above with a greyish, light brown, or cream colour. Varnishing the walls renders them *washable*, and also improves the lighting of the school. Washable distempers are now used in many schools. The ceiling should be whitewashed; but white is too glaring for the eyes to rest upon with comfort when applied to the walls after looking closely at the white surfaces of books during lessons. In all pauses of occupation the eyes are instinctively raised; and if repose is to be afforded to them they must encounter a less degree of illumination than that received during periods of work.

2. Floors.—Warmth and dryness are essential features of school floors, and every endeavour should be made to render them as noiseless as possible, particularly when the building contains more than one storey. Probably the best kind of floor for minimising sound is that formed of solid wood blocks about two inches square and nine or ten inches long, laid in herring bone fashion on a level surface of



Block Floor.—Pitch Pine and Yellow Pine (10" \times 2" \times 2").



Boarded Floor.
Dry Oak and Pitch Pine.

cement or asphalt; but this plan has the disadvantage of rather heavy expense. Thick, well-jointed, grooved and tongued floor-boards are less expensive, and are fairly satisfactory when the space between the joists beneath is packed with sawdust, slag-felt, or some other material to deaden the sound; but thin floor-boards are noisy, and owing to vibration are liable to throw up a considerable amount of dust during the marching of the scholars.

All the timber used should be well seasoned, otherwise the boards will gradually shrink until at last considerable gaps are left between them in which dust and dirt may collect; such accumulations are liable to decompose and vitiate the atmosphere. The ground floors must be raised some distance above the soil, and on no account should the joists of a wooden floor rest upon the ground. In order to avoid the occurrence of dry rot and the collection of foul air beneath the floors, the space underneath should be well ventilated by the insertion of gratings or air-bricks in opposite walls. This will ensure a free circulation of air beneath the floor-boards. The ends of the joists should also be surrounded by an air-space communicating freely with the external air. The sketches on pages 181 will serve to indicate how these methods of floor construction may be best secured.

3. Rooms.—The separate classroom system of organisation is greatly to be preferred when the teachers are sufficiently experienced to be left mainly to themselves; subject, of course, to the supervision of the principal. In all cases, however, a schoolroom or central hall should be provided large enough to comfortably accommodate all the classes together for daily assembly and dismissal and other public functions, as the unity and corporate life of a school are apt to be lost sight of when the scholars rarely assemble in a body.

A schoolroom without classrooms cannot now be sanctioned (except in the case of very small schools), as the noise of several classes working together in the same room must necessarily militate against concentrated mental effort, and cannot fail to have eventually a serious effect on the nervous system of both scholars and teachers; though these objections may be lessened to some extent by the use of curtains, or better still, by movable partitions between the classes. The disadvantages of both partitions and curtains are mentioned on page 184. As already stated, the plan of classrooms *only*, interferes with the corporate life of the school. Hence the most satisfactory arrangement is to provide the central hall with sufficient classroom accommodation for all the scholars.

Sometimes the classrooms are built around all the sides of the hall, but this prevents a free circulation of air in the latter, as well as interferes somewhat with its natural lighting. These defects are remedied by planning the rooms on one side only of the central hall, or along two parallel sides, leaving the ends quite free for lighting and ventilation.

The classrooms need not be all of the same size : it is generally desirable to have at least one large enough for an average attendance of 50 pupils, and another for 40, in addition to the usual calculation for 60. In many schools the need of additional classroom accommodation is met by subdividing the schoolroom by means of movable partitions or curtains. The Board of Education, however, has stated that the *excessive use* of partitions should be avoided, the chief objections being their interference with thorough ventilation, and the noise and difficulty of their movement. Curtains should also be avoided whenever possible ; they are often liable to be untidy in appearance and to harbour dust and organic matter, thus tending to foster and spread infection. If used at all, care should be taken to change them frequently, and to keep them scrupulously clean and tidy.

4. **Floor Space.**—It is important to remember that the allowance of 9 square feet of floor space for each child in an infant school, and 10 square feet per child in a school for older scholars, as stated in the Building Rules, is the *minimum* which will be sanctioned ; and efforts should be made to greatly exceed these amounts :—in fact, as much space should be secured as possible. For example, a typical classroom for 30 older scholars should measure 36 feet in length, 25 feet in width, and 14 feet in height. This gives 36×25 , or 900 square feet of floor space, thus allowing 30 square feet per scholar, or three times the prescribed minimum. If the class were doubled in size there would still be 15 feet per pupil, which is half as much again as the minimum, thus making a fair allowance for wasted space occupied by furniture, etc.

The amount of air-space for each pupil commonly varies between 100 and 120 cubic feet ; but it is advisable for the latter of these to be considerably exceeded. The *minimum* may be more reasonably fixed at 400 cubic feet per child ; the example just quoted allows 420 cubic feet for each scholar, and even if the class contained 60 pupils instead of 30, each would still have 210 cubic feet ; though in either of these cases provision must still be made for proper ventilation, as *cubic space cannot compensate for air-supply*. Formerly 8 square feet of floor-space and 80 cubic feet of air-space were considered by the Privy Council to be adequate for each unit of average attendance, after making allowance for space occupied by furniture, fireplaces, doors, etc., and these amounts are still permitted in the case of temporary schools, and those already sanctioned which

fulfil the other conditions necessary for the payment of annual grants; though medical testimony unanimously condemns them as altogether too small.

It is evident that cubic space is of very little value unless combined with sufficient floor space; for example, even 1,000 cubic feet per child might be provided and be of little or no value whatever if the pupils are so crowded together owing to inadequate floor space that the air all round them is rendered absolutely foul. A sufficient floor-space is therefore essential; and the height of a room above fourteen or fifteen feet affords practically no benefit, but may even be injurious, as it favours the accumulation of stagnant air unless some means are furnished for preventing this; when the stagnant air becomes cooled in the lofty ceiling it descends to the lower part of the room and is re-breathed by the occupants. From Rules VI. and VII. of the Board of Education it is easily seen that a schoolroom 12 feet high, allowing at least 10 square feet of horizontal space per child, provides a minimum of 120 cubic feet for each individual; where the area is more than 360 superficial square feet, and the height is at least 13 feet, a minimum allowance of 180 cubic feet per unit is provided; and where the room exceeds 600 square feet in area and is at least 14 feet high, the minimum amount of cubic space provided is 140 feet. All these standards, however, are too low.

In most of the schools under the London County Council the amount of space allowed per unit of average attendance is 130 cubic feet (10 square feet of floor space and 13 feet in height); in Canadian schools the allowance is 250 cubic feet per scholar. The former of these is quite insufficient; and even the latter can only be considered adequate on condition that all the arrangements for heating and ventilation in combination are carried out on the strictest scientific principles, and that the most thorough perfilation of the entire building is performed both before and after each attendance, as well as once or twice during each half day's session.

Schools should never be constructed in flats or storeys if another plan is practicable, as such an arrangement always necessitates the use of staircases, which should be avoided as far as possible.

5. Ventilation and Warming.—The *size* of a room can never compensate for want of change of air, except for a very short time; and therefore the question of floor and air space should also be considered with reference to the means employed for *ventilation*, which, in its turn, is closely connected with the proper warming of the school.

If school work is to be carried on with comfort and success, a constant and adequate supply of *fresh air* at a *proper temperature* must be provided. When a room is too warm or too close the children are apt to become listless, drowsy, and inattentive; when it is too cold the discomfort distracts their attention from the teaching, and interferes with all work which requires manual dexterity, such as writing, drawing, needlework, etc.

The chief requisites of an efficient system of ventilation are:—

- (1) A frequent change of air without causing draughts; because whenever the temperature of a room differs from the external temperature by 10° Fahr., a draught is certain to ensue.
- (2) The change of air should be constant, and not intermittent.
- (3) The incoming air should be pure.
- (4) An outlet for impure air should be provided.
- (5) All appliances for ventilation should be beyond the reach of the pupils' manipulation.

Fresh air is a prime necessity of life and health, while foul air in a concentrated condition is a virulent poison; hence the vital importance of keeping well-ventilated all rooms in which large numbers of children are assembled. A satisfactory system of ventilation should remove the foul air and supply pure air without the interchange being perceived; but no matter what means are employed for effecting this—and unfortunately, in many overcrowded schools the means are not always as effective as they might be—it should be a general rule to vacate the schoolroom or classroom for a few minutes every hour, during which time it should be thoroughly flushed with fresh air through open doors and windows. The time spent in so doing will not be lost, as both scholars and teachers will be able to work all the better in the purer atmosphere. Inattention, restlessness, headache, and languor are all the natural consequences of imperfect ventilation; and under such conditions injury is done both to health and work. Things which under more favourable circumstances might be readily learned by the children now become laborious and wearisome; while the teacher often pays the penalty by sore throat, nausea, dyspepsia, and general irritability, all of which may be traced to the same source.

As a result of careful investigation it has been found that in rooms with an area of 10 to 15 square feet per child, and from 12 to 14 feet high, it is necessary to change the air about ten times per hour in order to maintain it in a state of healthy purity. This

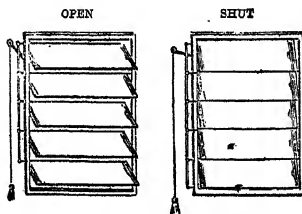
allows about 1,800 cubic feet per child per hour, or 30 cubic feet per minute; and this amount can only be obtained by properly utilising all the means and appliances for ventilation at the teacher's disposal.

Among the various modes of providing for the admission of pure and the exit of impure air, the following may be mentioned :—

I. Window Openings.—Windows should be placed well up towards the ceiling, and always be made to open. Where possible, opposite windows should be opened, or windows and door. In summer this method of ventilation may generally be utilised without inconvenience, but in cold weather some arrangements must be devised to prevent draughts; of these the best known are Dr. Hinckes Bird's method, double windows, glass louvre ventilators, and Cooper's disc.

(a) **Hinckes Bird's Method** is readily adapted to sash windows, and consists simply in raising the lower sash about three inches, and then closing the opening thus made by a piece of wood of the requisite length and width. The entering air passes in an upward direction between the two sashes, and as a general rule no draught is felt; though when the external air is much colder than that inside the room an uncomfortable draught may be produced.

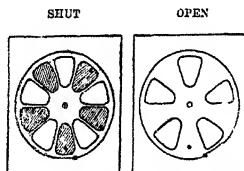
(b) **Double Windows** may be applied to Hinckes Bird's method by raising the lower sash of the outer window, and lowering the upper sash of the inner one, the fresh air passing between the two sashes. Elementary schools, however, are rarely provided with double windows.



Glass Louvre Ventilator.

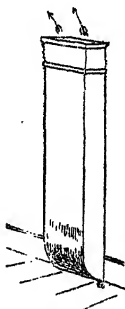
(c) **Louvre Ventilators** are commonly used in German schools, and consist of parallel strips of glass arranged after the manner of a Venetian blind. These are substituted for one of the panes of an

ordinary window, and can readily be opened at any angle or entirely closed by pulling a cord attached to a lever. When opened with an upward slant from the outside they admit an upward current of fresh air.

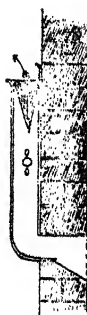


Cooper's Disc.

(d) **Cooper's Ventilator** consists of a circular disc of glass having five oval apertures in it, revolving on a pivot through its centre, close in front of one of the panes of a window which is pierced with five similar holes. When the disc is turned so that its apertures are opposite those of the window pane, fresh air is admitted.



INSIDE VIEW.



SECTION.

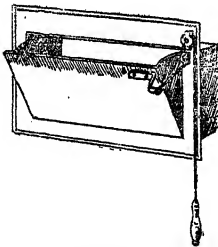
Tobin Tube.

II. Openings at the Floor, fitted with Vertical Shafts.—*Tobin's Tubes* are probably the simplest and best inlets for fresh air. Each consists of a wooden shaft or tube entering the room near the floor, and then turned up along the wall for a height of six or eight feet.

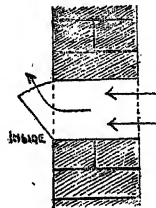
At its lowest point the tube communicates with the external air by means of a perforated brick or grating. Inside the tube is a flap valve by which it can be closed when not required; and sometimes a shallow trough of water is placed at the lowest part of the tube, which serves to arrest dust particles as well as to render the incoming air moist; but as the water soon evaporates it should be frequently renewed. The air entering a room through a Tobin tube is directed upwards, and afterwards descends slowly without causing a draught.

III. Openings in Walls.

(a) The Sheringham Valve is a simple appliance for admitting fresh air towards the upper part of a room. An opening in an external wall is made by means of a grating or air-brick. This should be fairly high up, but not too near the ceiling; a height of 9 or 10 feet is sufficient. Into the opening is fitted an iron or wooden box, provided on the inside with a valve hinged below, and having triangular side pieces so as to form a sort of trough or hopper. By means of a cord and pulley the size of the aperture can be regulated, and when necessary closed altogether.



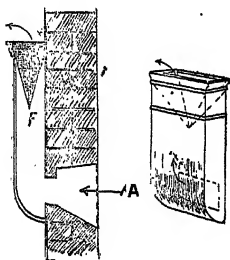
Sheringham Valve.



SECTION.

(b) Wall Bracket Inlets are modifications of Tobin's Tubes, the opening in the wall being situated from 4 to 6 feet above the floor, instead of near the floor itself. A filtering arrangement similar to that sometimes found in Tobin's Tubes is generally adopted with these inlets.

(c) **Perforated Bricks and Gratings** are generally liable to be draughty, though various devices have been adopted for lessening this drawback. Ellison's Inlet consists of a brick pierced with conical holes, the base of the cone being turned towards the inside of the room. The holes have a diameter of about $1\frac{1}{2}$ inches inside, and $\frac{1}{2}$ of an inch outside; so that the incoming air is distributed over a considerable area, thus diminishing the tendency to cause draughts. In order to secure efficient ventilation by the aid of these, a considerable number of bricks, placed fairly high up in the wall, will be found necessary.



Wall Bracket Inlet.

A = The direction of fresh air current entering through aperture into Bracket.

F = The filtering arrangement.

Arrows show direction of air currents.

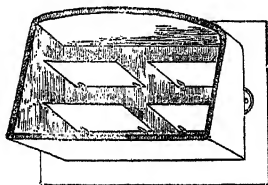
IV. Outlet Ventilators.—In addition to means for the admission of pure air, provision must also be made for the exit of impure air.

(a) **The Chimney** provides one of the best means of escape for foul air, and no classroom should be built without one. When open fires are used, there is always an exchange of air, and even when other means of warming are employed it is advisable for every room to be provided with an open grate to assist in ventilation. Sometimes a separate smaller flue is built alongside the chimney, and communicating with the rooms on each floor. When fires are used the air in this separate flue becomes heated, and therefore aspirates the foul air from each room in succession.

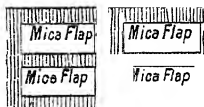
(b) **Chimney Valves.**—As the fireplace is too low to carry off all the impure air, which always tends to collect at the top of the room, some other form of outlet is also necessary. Dr. Neil Arnott invented a ventilator for this purpose. Arnott's valve is fixed near the ceiling, over the fireplace, and opens into the chimney. It is so arranged as to permit a free current of air from the room to the

chimney, but it closes immediately any back draught is attempted. The arrangement has been greatly improved by Boyle, who has made the valve perfectly self-acting by the use of light flaps of mica or talc; hence his arrangement is commonly known as the Mica Flap Valve.

INSIDE VIEW (Chimney).

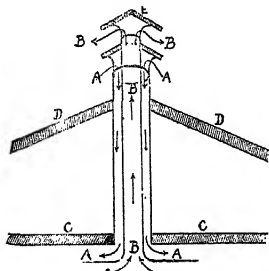


OUTSIDE VIEW (Room).



Improved Arnott Valve (Boyle Mica Flap Valve).

(c) McKinnell's Ventilator is well adapted for use in schools built in one storey only. It consists of two tubes, one within the other, and both opening at their lower ends in the ceiling of the room. The inner tube forms the outlet shaft, as it is always warmer and is carried higher than the outer tube, which being shorter and cooler serves as an inlet for fresh air. The diameter of the two tubes

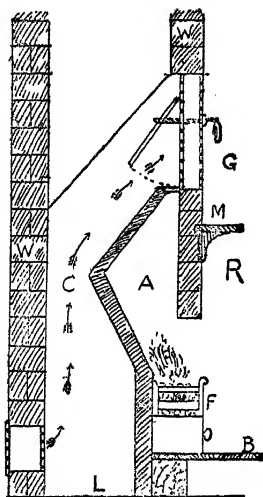


McKinnell's Ventilator.

- A fresh air.
- B foul air.
- C ceiling of room.
- D roof.
- E cowl.

should be such that the circular area of the inner, and the annular area of the outer, are equal. Fresh air enters the annular space between the two tubes, and is first distributed along the ceiling, and then to the walls by means of a flange placed at the lower end of the inner tube. A cowl placed slightly over the top of the tubes outside prevents rain from falling down the shaft.

V. Combined Methods of Ventilation and Warming.—In addition to securing an abundant supply of fresh air in a school, provision must be made whereby the incoming air may be warmed, when necessary, without depriving it of any of its vital properties. Schools consisting of but few rooms may be most economically warmed by means of open fires; larger schools, however, are far more efficiently warmed by means of hot-water pipes.



Section of
Manchester Grate.

- A = chimney.
- B = floor.
- C = air passage.
- F = fire.
- R = room.
- W = wall.
- M = mantel.

Various modifications of the open fire-grate have been designed for the purpose of preventing unnecessary waste of heat by utilising it for warming fresh air on its way into the room. One of the best is Shorland's Manchester School Grate, which is so constructed that the flame and the heated products of combustion impinge upon a large heating surface, so as to utilise much of the heat which would otherwise escape up the chimney. Behind the grate is an air-chamber lined with fire-brick and communicating on one side with the external air, and on the other with a shaft which passes along the side of the flue and opens into the room by louvred opening.

above the mantel-piece. Fresh air is admitted to the chamber through a grating near its lowest point, and after being moderately warmed by contact with the large heating surface, it passes up the air-shaft and issues into the room. The air-chamber and its shaft must be entirely shut off from all communication with the fire-grate and smoke-flue, so that none of the products of combustion can possibly find their way into the room; and in order to ensure this it is decidedly advantageous for all chimney flues to be lined with pipes.

The Galton, Longden, Boyd, and Pierce grates are all designed on principles similar to those employed in the Manchester grate.

It is important to remember that whether other means of warming are adopted or not, the Board of Education requires that an open fire *must* be provided in all classrooms for babies.

Advantages of Open Fires in Schools :—

- (1) They fairly well maintain the normal condition of the air, both as regards moisture and purity.
- (2) In very cold weather they supply the necessary amount of radiant heat.
- (3) They secure a good supply of fresh air from outside by withdrawing a large quantity of air up the chimney, thus aiding ventilation.
- (4) The apparatus is not liable to get out of order.
- (5) The appearance of a bright fire is always pleasant and cheerful.

Objections to Open Fires :—

- (1) There is a considerable waste of heat and fuel, even after the improvements already indicated have been effected.
- (2) Very unequal degrees of warmth are received at different parts of the room.
- (3) Time and trouble are frequently involved in replenishing the fire.
- (4) Cold draughts to the feet are often produced by the currents of cold air along the floor to the fire.
- (5) Unless fireguards are used, young or careless children are in danger of catching fire.
- (6) To a certain extent, smoke and dust are inevitable, either from accidental smoking of the fire or from escape of ashes; the hearth, moreover, rarely has a tidy appearance.

Closed Stoves are sometimes used in schools, but are not to be recommended when other means of warming are available. Their advantages are :—

- (1) The quantity of fuel consumed is comparatively small.
- (2) The heat is radiated into the room from all parts of the stove, and not merely from the front, as in the case of open fires.
- (3) The stove is under complete control; combustion may be rendered as slow as possible by simply adjusting the damper, so that little heat is lost up the chimney.
- (4) The stove requires much less attention and is considerably cleaner in use than an open fire.

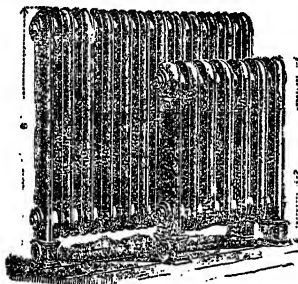
The disadvantages of closed stoves are :—

- (1) They generally render the air of the room hot and dry.
- (2) When highly heated they produce a close and unpleasant smell, caused by the charring of particles of organic matter in the air coming in contact with the hot iron stove.
- (3) Some of the products of combustion may escape into the room through cracks or joints in the stove. In this way carbonic oxide and other harmful gases may find their way into the room.
- (4) Unless special precautions are taken, children are in danger of being severely burned by touching the hot surface of the stove.
- (5) Except when special provision is made for the purpose, the stove does not provide for the entrance of a fresh supply of pure air into the room; hence it only warms the air already in the room, and is of no assistance in ventilation.

Hot-water Apparatus.—The most economical mode of combining warming with ventilation in large schools is by means of hot-water apparatus. Of this there are two arrangements :—the *low pressure* system, in which the temperature of the water is not raised above 200° Fahr., and in which there is consequently no great pressure on the pipes; and secondly, the *high pressure* system (Perkin's Patent) in which the water is heated from 300° to 350° Fahr., thus subjecting the pipes to considerable pressure.

The low pressure system is the one generally adopted in schools. A boiler heated by a furnace is fixed somewhere near the lowest part of the building. From the top of the boiler the main pipe passes upwards to the rooms above, and after being carried round

the various parts of the school—it returns and re-enters the lower part of the boiler. The pipes and boiler are kept constantly filled with water by means of a cistern from which a supply pipe enters the main return pipe near its lowest point. The pipes which convey the warm water round the rooms are about 4 to 5 inches in diameter, and are always in a double row to allow of circulation. As hot water is lighter than cold, it passes through the pipe at the top of the boiler, and, after having given up its heat to every part of the building, it returns to the lower main pipe; thus a constant circulation of water is kept up within the pipes so long as there is a fire in the furnace. At the highest point of the system of pipes an air or steam escape must be provided.



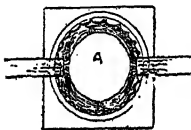
Column Radiators.

Manufactured by Messenger & Co., Loughborough.

Hot-water pipes alone are of little value for ventilating purposes; but in order to utilise them for securing a constant supply of pure air at a proper temperature, communication between the pipes and the outer air is secured by means of air bricks or gratings, which must be so arranged that the air from outside will remain sufficiently long in contact with the warm pipes before entering the room. In order to obtain a greater heating surface Radiators are often employed; these consist simply of an arrangement by which the hot-water pipe is coiled upon itself several times in different parts of the room, so as to expose a large metallic surface for radiating heat; to secure the full benefit, the pipes should be painted black. The coils thus formed may be enclosed in ornamental gratings, and

fresh air may be admitted by means of air-bricks in the wall behind, as already indicated. An improved form of Column Radiator now used in many schools is given in the accompanying sketch.

One of the best arrangements for securing a continuous supply of fresh warmed air is that adopted in the Wenham and Water's system. Here the coil consists of a series of vertical columns inside each of which is a hollow air-space, while the concentric tube is filled with a supply of hot water circulating in the ordinary way. The lower ends of the inner tubes communicate with the external air, while their upper ends open into the room. The entering air is thus warmed by passing through the ring of hot water in the columns, and a constant supply is maintained so long as the



Section of Column
in Wenham & Water's
Radiator.

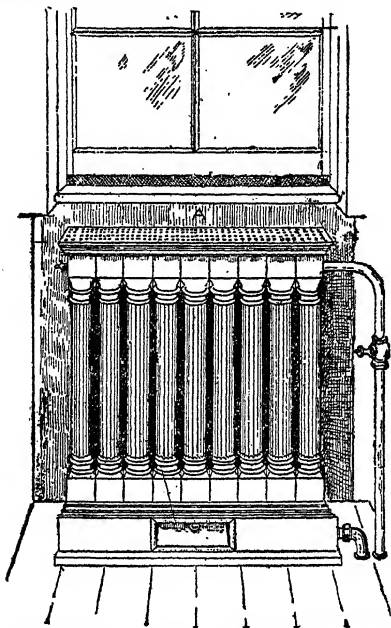
A = Air Column.

apparatus is working. Heat is of course radiated into the room by the columns themselves.

In the high pressure system of heating by hot water no boiler is employed, but instead a portion of the pipe passes through the furnace. The pipes have an internal diameter of about half an inch, and are much thicker and stronger than those used in the low pressure system, for as the water in them is raised to a much higher temperature the pipes are subjected to greater pressure. This method requires very careful management, as failure in circulation would at once result in an explosion; hence it cannot be recommended for adoption in schools.

Whatever system of hot-water apparatus is employed, however, it will still be necessary to provide for the removal of the vitiated air caused by breathing, by suspended organic impurities from dirty or diseased scholars, and (when necessary) by artificial lighting. Exit shafts in the ceiling should therefore be provided to carry the impure air towards the roof; and in order to induce an upward air-current a gas fire or coil of hot-water pipes should be placed near the highest part of the exit shaft. Special care must also be taken that all the pipes in the system are kept supplied with water, that they do not get too hot, and that precautions are adopted in winter to prevent the freezing of the water. When the pipes pass round separate rooms above the floor some means of protection are

generally desirable, and on no account should children be permitted to sit upon or close to them.



Column Radiator on Wenham and Water's System.

Advantages of Hot-water Apparatus.

- (1) The warmth is evenly distributed throughout the school.
- (2) The temperature of the pipes can be easily regulated.
- (3) Adequate provision is made for a supply of pure air at a suitable temperature.
- (4) The liability for the air to be mixed with products of combustion (as in the case of stoves and open fires) is obviated.
- (5) The furnace is entirely away from the working of the school, and thus the apparatus can be attended to without interference with school work.

Disadvantages.—The chief objections urged against the use of hot water for heating purposes are:—

- (1) Its costliness ; the initial expense is necessarily heavy.
- (2) The services of a separate attendant are required.
- (3) The danger of the water freezing in winter, and consequent bursting of the pipes.
- (4) Hence the apparatus is liable to get out of order at the time when it is most needed.

Warming by Hot Air has sometimes been proposed for adoption in schools, but owing to its great cost as well as to several serious objections mentioned below, it can hardly be considered suitable. In this system the entering air is warmed by passing over steam pipes, or (more frequently) over the heated flue of a furnace, and is then carried by shafts to different parts of the building which it enters by means of gratings fixed in the floors. Hence unless arrangements for the hot-air shafts are made during the erection of the building, this method of warming cannot be adopted without very great expense. The chief *advantages* claimed for the use of hot air are:—

- (1) The warmth can be uniformly distributed throughout the school.
- (2) The temperature can be easily regulated by the admission of cold air to the hot-air shafts.
- (3) The entrance gratings can be placed where the inflow of warm air will cause least inconvenience.
- (4) The apparatus is entirely apart from the school.
- (5) When proper exits for impure air are provided at the highest part of the room efficient ventilation is ensured.

The most serious objections to the system are:—

- (1) It is generally more expensive than any other method of warming.
- (2) Its adoption practically forbids the opening of windows, and thus necessitates an artificial system of ventilation.
- (3) The air is generally far too dry for purposes of health, and near the entrance gratings is often intolerably hot.
- (4) The air-supply is frequently drawn from the furnace-room and in such cases is of doubtful purity, especially when the room is underground, as is almost invariably the case ; sometimes the air may even be sucked from drains and other dangerous sources.
- (5) The hot-air shafts are always out of sight, and if they communicate by any crack or imperfect joint with the furnace, carbon monoxide and sulphurous acid, two of the most dangerous products of combustion, may be carried into the room and breathed by its occupants.

These objections are undoubtedly sufficient to at once condemn the adoption of hot-air apparatus as being unsuitable for warming purposes in schools.

School Thermometers.—The regulations of many Education Authorities limit the period during which appliances for warming must be used according to certain months of the year; but it is scarcely necessary to state that in warming a school the thermometer should be the guide, and not the calendar. Whatever means for warming are adopted, such a temperature should be maintained that teachers and scholars may be able to work in comfort, and free from the risks of chill. The Board of Education has laid down the rule that in schools for older scholars the temperature should range from 56° to 60° Fahr., while in a babies' room it should be not less than 60° Fahr. In order to readily ascertain that the proper degree of warmth is secured, each classroom should be provided with a thermometer, while one or more should always be kept hung up in the schoolroom and corridor, in such positions that they will not be unduly affected by the heating apparatus or by draughts.

6. Light.—The means employed for lighting a school should have two purposes in view:—the provision of a proper amount of light, and its equal diffusion. The effect of either an excess or a deficiency of light is to strain the eyesight; while in a dimly-lighted room it is difficult for children to see their work, and the gloom is liable to cause depression of spirits on both teachers and pupils.

Lighting may be either natural or artificial—the former depending on the amount of window-space, and the latter on the provision of artificial illuminants.

Every part of a school should have plenty of window-space. So long as the light does not fall either directly or by reflection on the eyes of the children and teachers, too much light cannot be provided. Well-lighted schools and classrooms are not only much healthier than dark ones, but they are more likely to be kept clean, and are far better adapted for mental work.

The area of window-space has been estimated by various authorities at from one-fourth to one-tenth of the total floor-space; sometimes it is stated as one-fifth of the wall-space. Professor Cohn of the Eye Hospital at Breslau proposes a minimum of 30 square inches of glass for every square foot of floor area. It is evident, however, that the amount of window-space necessary for a school will be largely determined by its surroundings; town schools

generally require more window-space than those in the country, owing to the proximity of other buildings; and for a similar reason when a school is built in flats, classrooms on the ground floor require a greater window area than those in an upper storey. The distance of neighbouring buildings, also, should be at least twice their height; though it is not always possible to secure this. The simplest and best plan is to secure as much light as possible in a school, provided that adequate arrangements are made for avoiding all glare, and that skylights are never resorted to when windows are practicable.

Natural Light.—The chief details requiring attention in the provision of natural light may thus be summarised :—

- (1) The glass of the windows must be clear and the panes large; and a large part of each window must be made to open for ventilation and cleaning.
- (2) The window-sills should be not less than four feet above the floor, and the higher the windows rise to the ceiling the better for both light and ventilation.
- (3) The light should be abundant, but all glare must be avoided. Hence southern windows are not the best, though at least one in this direction should be provided for the sake of cheerfulness. The main light should come from the north, as it is steadier and cooler.
- (4) Children should never be allowed to sit with the sunshine full in their eyes or beating on their heads; if windows are so placed that the sun's rays enter direct, blue or grey linen blinds should be provided.
- (5) The best light for school work is that which comes from the left, because in this case the shadows of the hand, pen, or pencil do not fall upon the child's work when writing or drawing. A maximum of diffused light without glare is thereby obtained.

Artificial Light.—This is chiefly required for evening classes, though it may occasionally be also needed during ordinary school hours. Whenever artificial lighting is necessary, the means employed must be both efficient and hygienic. Heat and glare on the eyes, and shadows on the desks are alike to be avoided; and in all cases where gas or oil-lamps are used, some efficient means for the escape of the products of combustion should be provided

immediately over the burners, otherwise the atmosphere of the room will soon become charged with noxious gases. Oil-lamps are only needed in remote country districts where a gas supply is not available. In the majority of schools where gas is the usual artificial illuminant, the adoption of the Incandescent burner is preferable to the ordinary form. Owing to its expense the electric light is at present rarely adopted in elementary schools; but on account of the greater purity and intensity of the illuminating power, as well as the absence of heat and the products of combustion, which add so seriously to the deterioration of the air, there is no doubt that it will ultimately supersede all other methods of artificial lighting.

7. Cleanliness and Attractiveness.—It is of the utmost importance, especially in poor localities, to make the scene of school work as clean and attractive as possible. Every part of a schoolroom and its classrooms should be *washable*. Dust is one of the chief enemies to the health of both teachers and scholars, and it should therefore be carefully removed every day from the floor, furniture, or any other place where it is likely to accumulate. Wet saw-dust should be freely scattered, however, before sweeping or dusting, and *dry dusting should not be permitted*. It must never be forgotten that the dust of a schoolroom contains not only the mixed organic and mineral refuse trodden in from the streets, but also dried expectorations and mucus which may possibly have been derived from persons recently recovered from some infectious disease; and thus various forms of sickness may be readily spread by means of school dust. Frequently the “close” or “stuffy” smell which is noticeable to anyone entering a school or classroom is due not simply to imperfect ventilation, but to uncleanness of floors and walls, or of the bodies and clothing of the pupils. Hence the great desirability of taking all possible precautions for keeping the schoolroom and everything connected with it scrupulously clean.

The following rules may be suggested for adoption in order to assist in securing cleanliness in a school :—

- (1) Every room should be thoroughly swept each evening, and the furniture well dusted in the morning. Weather permitting, the windows should be thrown wide open during the process, both to assist in the removal of the dust and to secure that the rooms are thoroughly well aired.

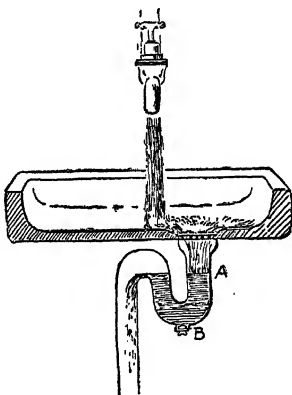
- (2) The floors should be scrubbed with hot water and soap or soda at least once per month; the frequency of this process, however, will be largely determined by the locality of the school and the class of children attending it.
- (3) The walls should be swept at least once per month; if varnished they should be carefully wiped with a damp cloth, and at the same time all maps and pictures should be dusted.
- (4) Windows should be cleaned once per quarter.
- (5) Fire-places or stoves, when used, should be cleaned weekly; hot-water pipes and radiators should be wiped daily with a damp cloth.
- (6) Every two to five years, according to the district, the entire school buildings should be painted inside and out.

Cleanliness and attractiveness are essential conditions in every school, not only on the score of health, but also with the object of promoting that cheerfulness and pleasantness which should characterise all school work, as well as for setting before the children an example of neatness and order. The general appearance of every room in a school should be one of tidiness and reasonable comfort; while the more attractive it can be made, whether by pictures, photographs, diagrams, and maps, by cases of object-lesson illustrations, by plants and flowers, by models of various kinds, or by the numerous other beautiful and useful appliances which various educational firms have been at such trouble and ingenuity to produce, the more helpful it will be for scholar and teacher alike.

8. Cloak-rooms.—The cloak-room accommodation of every school should be under strict regulations; each class should have its own space or division, and each pupil his own numbered peg. According to the size of the school, one or more teachers should be in charge when the school meets or is dismissed. It is a matter of supreme importance that some means should be provided for drying the clothes and boots of children who come from a long distance during stormy weather; and when schools are heated by hot water this can be readily effected by conducting the pipes round the walls of the cloak-room. Adequate provision for ventilation must also be made to carry off the smell and vapours from the wet clothing, otherwise these may penetrate into the schoolroom. In addition to hanging rails, a sufficient number of strong umbrella stands with properly drained cast-iron troughs underneath should be furnished for umbrella drainage.

In mixed schools the cloak-room should be double, entirely separate divisions being assigned to each sex; and in all cases it should be built at a sufficient distance from the outer door of the school building to give the children perfect confidence in leaving their property in it; hence the street door of the school should not open directly into the cloak-room.

Lavatories are generally found in connection with cloak-rooms. For these a plentiful supply of water should be provided, and the wash-basins and sinks constructed according to approved sanitary principles as well as with a minimum of liability to get out of order. The Board of Education requires that the waste pipes should be first trapped inside and then made to discharge direct through an outer wall over a trapped gully. The best kind of trap is the syphon-bend with a water-tight movable screw or plug beneath for cleansing purposes or for the removal of



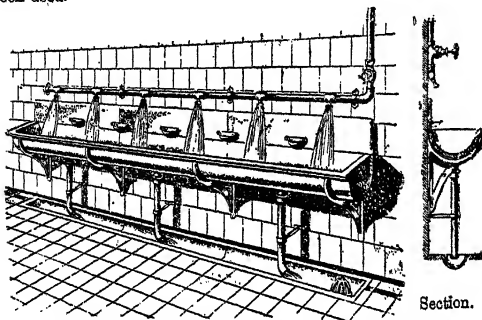
Section of Syphon-bend Sink Trap.

B = Movable screw or plug.

A = Water seal.

solid bodies and deposits, so as to prevent the stoppage of the pipe. Among the numerous forms of lavatory basin adopted in schools, one of the best arrangements, from a sanitary point of view, is Messrs. Doulton's Improved Trough Lavatory with sprays, as shown in the accompanying sketch. This has recently been adopted by the London County Council, and is now being fitted in all their new schools. The object aimed at is to prevent children from washing in water which has been previously used, and thus in some measure to limit the spread of contagious diseases. With this improved arrangement the children have to wash their hands under the spray. The trough is made in sections and as there is an outlet at the middle of each section with a slight slope each way, the water is drained off at once, thus preventing the children from using the

trough for washing purposes. A constant supply of water is provided, a single valve regulating the whole range; it is therefore impossible for the children to wash in water which has already been used.



Doulton's Improved Trough Lavatory with Sprays.

When schools are built in storeys, separate cloak-rooms and lavatories should be provided, adjoining the staircases, on each storey; and in all cases it is essential that the cloak-room floors should be impervious to moisture. For convenience in marching it is advisable for each cloak-room to communicate with the schoolroom by *two* doors, or by *four* if necessary, but never *three*, as the odd door is generally useless.

9. Teachers' Rooms.—Every well-planned school should possess two private rooms,—one for the head teacher and another for his assistants. The former is necessary on account of the numerous private interviews which a head teacher must have with parents or managers; the latter is especially useful when any of the assistant teachers remain on the premises during the dinner hour, and should contain cupboards for storing exercises to be marked, examination papers, etc., as well as a small library of useful books for reference. A store-room fitted with shelves or cupboards provided with sliding glass panelled doors is also practicably indispensable in large schools, and is best planned adjoining one of the Teacher's rooms. An account of the contents of each cupboard or shelf should be kept in the stock-book and checked periodically.

10. Playground.—The playground is one of the most important adjuncts of the school, and quite as necessary for producing satisfactory educational results as the classroom. As the school itself should aim at the development of the sound mind, so the playground should conduce to the development of the sound body, by affording relief from mental work, bringing into play the cramped muscles, and giving opportunity for the discharge of that superfluous energy and restlessness natural to children, which otherwise might cause considerable trouble in the maintenance of discipline.

Moral value of the Playground.—In addition to the physical benefits arising from the games and exercises indulged in, the playground may be made to serve as an important factor in the development of character, when proper supervision is exercised by the teacher. Its moral uses may be thus briefly summarised :—

- (1) Valuable opportunities are afforded to the teacher for watching his pupils when they are free from restraint, and thus learning their true characters and dispositions.
- (2) Timid and nervous children often gain confidence, while bullying and petty oppression are checked by the teacher's presence.
- (3) Children often try to be brave when hurt in the playground, and to preserve good temper under apparently difficult circumstances, thus learning to exercise self-control.
- (4) Habits of forbearance and unselfishness, together with respect for fairness and justice in games, are fostered.
- (5) Mental inability is often compensated by skill in games; the dullard in school is often able to win special credit for physical ability in the playground.
- (6) The active interest and co-operation of the teacher in the promotion of healthy, manly games serves to brighten school life, to popularise him with his pupils, and to rouse in them a feeling of respect for the honour of the school.

The proper supervision of the playground is quite as important as that of the classroom. If children learn evil habits or hear impure language at school, they do so chiefly in the school-yard. The presence of the teacher will restrain what is wrong, without in any way checking the children's interest in healthful sports and innocent recreation. Rough games which interfere with the comfort of those not engaged in them, or endanger the safety of those who are playing, will not be indulged in when he is at hand. Wanton destruction to school property and intentional injury to clothing will be prevented, and due attention to courtesy of manner and propriety of

language secured ; and all these details have an important influence on the tone of the school. Many of these opportunities for moral training will be lost if the teacher is not an active participator in, or a sympathetic observer of the school games.

Situation.—The playground should be situated on the sunny side of the school, and the minimum space allowed should be 30 square feet per scholar ; though as large an area as possible should be secured. For infant schools it must be on the same level as the school itself ; in a school for older scholars, when sufficient land for the purpose cannot be secured, the school may be built with a flat roof which can be utilised as a playground, provided it is properly fenced in and adequate precautions are taken to prevent accidents. In large mixed schools separate playgrounds must be provided for boys and girls, with separate entrances.

Every school should possess a supply of gymnastic apparatus, adapted to the age and requirements of the scholars, for use in the playground ; *fixed* gymnastic apparatus is scarcely suitable for children under fourteen years of age, but swings, skipping ropes, footballs, cricket requisites, etc., should be available in sufficient quantity, and where the school time-table provides for games as suitable physical exercises, the cost of these appliances may legally be defrayed out of the school income.

The floor of the school playground is an important consideration ; asphalt is generally found to be the most satisfactory covering, and this should be properly drained by slightly sloping the surface towards small well-trapped sinks.

Part of the playground should be under cover, to protect the children from occasional showers and to afford space for recreation during wet weather. In towns it is generally advisable to surround the playground with a high wall, as the rudeness of onlookers often interferes seriously with the open-air drill when the playground is simply enclosed by railings.

Where practicable, the cardinal points of the compass should be prominently marked on each wall of the playground, and also on the walls of the schoolroom and classrooms ; but the position of the school may sometimes cause some difficulty in determining the points with accuracy. A well-defined North and South line, however, should be marked on the floor or ceiling of all schools for older scholars, and will be found specially useful in the teaching of geography. On the surface of asphalted playgrounds this line is

sometimes prominently and permanently shown by means of differently coloured asphalt.

One or two waste-bins or wire waste-paper baskets (similar to those often seen in public parks), for the reception of waste-paper, etc., should be placed in every playground, and will generally be found useful for training the children in habits of tidiness.

When the playground is large a narrow strip round its edges may advantageously be devoted to the cultivation of flowers and shrubs.

Alterations to School Buildings.—Many of the school buildings now in use were built before the present Building Rules of the Board of Education were drawn up, and therefore do not strictly conform to them in every respect; but improvements can be gradually effected in most cases, unless the buildings are so far defective as to endanger the health of the teachers and scholars, when immediate improvement will be required. H.M. Inspectors may sometimes suggest alterations in school buildings, but the managers should not proceed to make any structural changes, even if they approve them, without previously consulting the Board of Education. Managers will also find it very useful to preserve plans of the school premises drawn in conformity with the Building Rules.

Summary of the most important requirements in planning School Buildings :—

- (1) All school buildings must be provided with a Schoolroom or Central Hall.
- (2) The proper width for a schoolroom is from 18 to 22 feet; in very small schools it may be not less than 16 feet.
- (3) The minimum allowance of floor space is 9 square feet per child in infant schools, and 10 square feet per child in upper departments.
- (4) Central Halls should contain a floor space of not less than 1,200 square feet, but must not be excessive in size.
- (5) The minimum dimensions for a classroom are 18 feet by 15 feet. As a rule not more than 60 children should be taught in any classroom.
- (6) The proper area of a Cookery or Laundry classroom is 750 square feet; the approximate cubic space is 10,500 cubic feet.
- (7) The walls of all rooms used for teaching purposes must be at least 12 feet high when the area is less than 360 square feet; 13 feet when under 600 square feet; 14 feet when above 600.
- (8) Brick walls must be at least $1\frac{1}{2}$ bricks thick (i.e., not less than 14 inches); stone walls must be at least 20 inches thick; and all walls must have a damp-proof course.

- (9) As far as possible, light should be admitted from the left side of the scholars. A large portion of each window should be made to open. The sills of the main lighting windows should be about 4 feet above the floor, and the tops should reach nearly to the ceiling.
- (10) Inlets for fresh air must be at least $2\frac{1}{2}$ square inches per child; and outlets at least 2 square inches.
- (11) In schools for older scholars an evenly distributed temperature of 56 to 60 degrees must be maintained; for infants the temperature should be from 60 to 65 degrees.
- (12) Sanitary arrangements must be perfect in every detail.
- (13) Staircases must be fireproof [hence wooden staircases cannot be sanctioned on any account]; each step must be about 13 inches broad, and not more than 6 inches high. Winding stairs are inadmissible.
- (14) Cloak-rooms should be external to the schoolroom and classrooms, and must be at least 4 feet wide.
- (15) The minimum size of playground is 30 square feet per child; the minimum size of site is a quarter of an acre for every 250 children.
- (16) No infant gallery should hold more than 65 infants; nor in a babies' room more than 50. The babies' room should always have a properly protected open fire, and be maintained at a temperature of not less than 60 degrees.
- (17) As far as possible, practical work should be done at special centres, entirely apart from the school.
- (18) Unnecessary rooms in any school buildings will not be sanctioned.

EXAMINATION QUESTIONS.

1. Enumerate the conditions on which the perfect healthiness of a school and its premises mainly depends, and say what precautions it is in the teacher's power to take for securing them.
2. Write out some of the chief principles to be observed in the lighting and ventilation of a schoolroom.
3. Describe the most effective ways you know of warming a school. Say what should be the ordinary temperature of a schoolroom, and what evils arise from permitting that temperature to become too high or too low.
4. Describe the best methods you know of keeping the air of a schoolroom fresh and pure, and of maintaining a uniform temperature throughout the day.
5. State, without going into details, (a) the evil effects of bad ventilation; (b) the essentials of good ventilation; (c) the best mode of distributing light in the schoolroom.
6. What rules should be adopted by a teacher in order to keep the schoolroom perfectly healthy and clean?
7. What do you consider to be the uses of a playground, and how would you endeavour to make it subservient to the discipline of a school? To what extent (if any) would you take a personal part in the children's play?

8. What directions would you give for the daily and weekly cleaning of a schoolroom? What additional cleaning is needed at longer intervals?

9. In planning school buildings, what amount of area should be allowed per child in schoolrooms, classrooms, and playgrounds respectively? What regulations are prescribed with respect to the height of the rooms?

10. What rules should govern the cloak-room accommodation in a school?

11. What points are of chief importance in the shape and size of a good classroom? Discuss, briefly, the natural and the artificial lighting of such a room, and state on what principles you would seek to divide up the floor space.

12. Discuss the advantages and disadvantages of the central hall plan for a school building. What other satisfactory arrangement of classrooms and hall do you know of?

13. Describe the system you would adopt in ventilating a classroom for forty boys.

14. State briefly what you consider to be the essential principles in the planning of schools.

15. What are the chief conditions that should govern admission into a schoolroom of (1) light, and (2) air?

16. Give the dimensions of a schoolroom capable of accommodating 100 children comfortably. How should you propose to heat and ventilate it?

17. What objections can be urged against the use of curtains and movable partitions in schools?

18. How may the noxious products of combustion of gas-burners be most effectually removed from a schoolroom? Describe some system of gas-burners which produce effectual combustion without vitiating the atmosphere of a schoolroom.

19. Show that the rain-water which falls on a school roof, and water from school lavatories, should be carried into the drains on a different plan from that pursued in removing nuisances likely to generate noxious gases.

20. What are the dangers of overcrowding in schools, and what means would you propose to remove them?

21. Compare the relative advantages and disadvantages of open fires, closed stoves, hot-water pipes, and hot air for warming purposes in schools.

22. Describe the most suitable mode of constructing school walls and floors, so as to prevent dampness.

23. What are the most important points to be observed in the construction of a school staircase?

24. Describe the arrangements of a good school lavatory. What are the possible dangers arising from wash-basins and how may they be prevented?

25. State the relative advantages and disadvantages of lighting a school-room by windows facing or behind the scholars, or on their right or left.

CHAPTER VIII.

SCHOOL FURNITURE AND APPARATUS.

In fitting up a school with furniture and apparatus it is necessary for teachers and managers to carefully keep in view the special use to which the various fixtures and appliances are to be put, so that all may serve their purpose in the best possible manner. Educational aids are only useful in proportion to their adaptability to the purposes for which they are intended; and while it is undoubtedly true that an enthusiastic teacher can produce creditable results with a minimum amount of furniture or apparatus, and equally true that very poor instruction can be given by an indifferent or incompetent teacher with a wealth of appliances; it is none the less certain that sufficient furniture of the right kind, and suitable apparatus in the hands of a thoroughly competent teacher must produce results which cannot as readily be obtained under any other circumstances.

Choice.—While the objects aimed at are comparatively few and simple, the enterprise and ingenuity of different makers have produced great variety among both furniture and apparatus, the choice of which should be determined by the following considerations:—

- (1) **Utility.**—The convenience and comfort of teachers and scholars must be the principal considerations.
- (2) **Strength.**—School furniture is for the use of children, and must therefore be able to withstand such usage as children will give it; hence it must be strong, durable, and not liable to get out of order. The lowest priced article is not always the cheapest in the end; true economy consists in purchasing that which is good and substantial rather than that which has no other recommendation except cheapness.
- (3) **Mobility.**—Re-arrangement of furniture and apparatus is often necessary for various purposes, and therefore within reasonable limits, convenience for removal should be provided. The heavier articles of furniture should ride on casters; but scholars' desks are generally best secured to the floor.
- (4) **Appearance.**—The general appearance of the schoolroom and its appointments is a constant and important factor in the cultivation of taste among the children. Elegance of

design can be secured without sacrificing either strength or utility, and it will generally be found that good school materials of every description are better cared for, both by teachers and scholars, than those which are unsightly or easily damaged.

I. Furniture.—In its widest sense the term “School Furniture” may be considered to include everything that is requisite for the accommodation of teachers and scholars; it is generally limited, however, to such fixtures and permanent structures of the schoolroom as galleries, desks, seats, and cupboards. Other items of secondary importance are partitions, curtains, window-blinds, ink-wells, fire-guards, and various miscellaneous articles which are indispensable for successfully carrying on the work of a school.

(a) **Galleries.**—These are generally found in infant departments, though the same idea exists in the stepped floors of the most modern type of schools for older scholars. In each case the gallery is most conveniently located in a classroom, though in many infant schools it is placed at one end of the schoolroom.

The following are the most important points to be considered in the arrangement and construction of a gallery :—

- (1) It should be so placed that the light comes from one side, preferably the left; though for object lessons light from the right is equally serviceable. Light directly from the front is generally trying to the children, and interferes with a distinct view of work done on the blackboard; a back light is trying to the teacher, and causes the pupils' faces to be in the shade.
- (2) There should not be more than six rows of seats, and five will generally be sufficient.
- (3) Each platform should be not less than 2 feet wide, and the seats should be so placed as to leave at least a foot of space behind the last row.
- (4) The height of the seats will depend on the age and size of the occupants; for the smallest and youngest children it should be about 7 inches, increasing gradually, according to varying ages and sizes, to a maximum of about 12 inches. In the Senior school this may be somewhat exceeded.
- (5) Each seat should be not less than 9 inches broad, and from 15 to 18 inches of space should be allowed per pupil.

- (6) A sloping back-rest, about 8 inches high, should be provided for each seat, in order to ensure comfort in sitting, and to protect the children from the feet of those behind.
- (7) Gangways about 18 inches or 2 feet wide should be provided at both sides of the gallery, and if it does not extend across from wall to wall the sides must be protected with a hand-rail. The steps in the gangways should be adapted to the age of the scholars who use them.
- (8) It is generally advisable for the walls near the gangways to be boarded.
- (9) No infant gallery should be intended to accommodate more than 65 infants, nor in a babies' room more than 50. If the numbers are very large, galleries in separate rooms should be provided.
- (10) Galleries for older scholars should generally be arranged so that desks may be placed on them, the front row resting on the floor. The platforms here should be not less than 2 feet 2 inches wide, and a rise of 4 to 6 inches will be sufficient for each successive row.

Uses of the Gallery :—

- (a) It furnishes the most convenient means of arranging children for oral lessons, particularly in the earlier stages of school life.
- (b) It enables every scholar to see and be seen to a much better degree than when the class is on a level floor, the disadvantage in position of those towards the back of the class being compensated by their higher elevation; this is also the case when desks for older scholars rise in tiers from the level of the teacher's table.
- (c) Ready supervision by the teacher, and the provision of extra facilities for observation on the part of the pupils, will conduce both to maintenance of discipline and success in teaching.

(b) **Desks.**—All schools should be provided with sufficient desk accommodation for every child in average attendance, with the possible exception of the two youngest classes in the infant department, and even for these kindergarten desks are often found serviceable.

Probably no item of school furniture has demanded such an expenditure of thought and skill as the school desk; the main consideration being to secure for the pupil a maximum of comfort so far as is consistent with a minimum of luxury. Needless bodily discomfort causes fatigue and consequent inattention, and even in extreme cases physical deformity; while superfluous ease generally produces drowsiness and sluggishness of mental movement. The chief *difficulties* to be overcome are three in number:—

- (1) Adaptability of the desk and seat to pupils of varying height and girth.
- (2) Arrangement of the seat in order to secure a suitable distance between the pupil's body and the edge of the writing slope.
- (3) The need of a foot-rest, with a view to prevent distortion of the spine by crossing the legs or curling them under the seat.

So far as teaching purposes are concerned, a desk must therefore be considered serviceable or otherwise in proportion as it seeks to remove these difficulties; and in this connection it needs very little thought to conclude that *convertible* or *reversible* desks, which are so designed that the top may be made flat for a table, sloped for writing purposes, or turned so as to form a back for the seat, can never be really satisfactory for school use.

General Conditions which should be fulfilled by all School Desks.

- (1) They must be constructed from a hygienic point of view so as to promote the health requirements of the children, and at the same time be fully adapted for all teaching purposes.
- (2) A vertical line dropped from the edge of the desk should strike the edge of the seat. This compels the child to maintain an upright position of body, which is best for the eyes, chest, and spine. Some authorities recommend that for writing lessons the edge of the desk should overhang the edge of the seat by $1\frac{1}{2}$ or 2 inches.
- (3) The height of the desk should be such as to allow the pupil's fore-arm to rest comfortably on the top, when he is seated; the length of the fore-arm thus gives a fair standard for determining the vertical distance between the top of the desk and the seat.
- (4) The height of the seat should be equal to the length of the pupil's leg from the knee to the sole of the foot; and its width should be about one-fifth of his body.
- (5) The seat should be made with a slight inclination backwards, so as to counteract the tendency of the body to slip forwards when in the writing position.
- (6) Back-rests should be provided, with the centre of support just below the shoulder-blades.

- (7) The general design of the desks must allow both easy access and compact arrangement; thus providing adequate facilities for the children being quickly moved in and out of them, or for any child being reached by the teacher, as well as for the entire class being within the range of vision from any position in front.
- (8) Either the desk-top or seat, or some part of them, must be movable, so that the pupil may be able at any time to comfortably stand upright in his place.
- (9) For writing lessons the desk-top must have a slope of 10° to 15° (about 1 in 5); as used in reading, it must support the book at an angle of about 45° , and at a distance of *at least* 12 inches from the eyes.
- (10) Perfect rigidity is an important requisite in order to prevent oscillation or displacement of the desk by chance pressure.

Kinds of Desks.—Among the many different designs of school desks there are in reality only three types—*single*, for seating one pupil only; *dual*, for two; and *long*, accommodating from three to eight scholars. The first two types constitute what is sometimes termed the *short length system* of desking; the use of the third is often called the *long length system*. So far as accommodation is concerned, it will be seen later on that dual desks provide the *most*, long desks *less*, and single desks the *least* accommodation.

Single Desks are undoubtedly the best for all school purposes, and are used in many American and Continental schools, as well as in English secondary schools. The rules of the Board of Education now require them to be provided in Higher Elementary Schools. Their *advantages* are:—

- (1) The desk can be more readily adapted to pupils of varying height than any other kind.
- (2) Each pupil is completely isolated from his neighbours.
- (3) He has complete control of the movements of his own desk and materials.
- (4) Independent effort is fostered.
- (5) The maintenance of discipline is rendered easier.
- (6) The spread of infectious disease is checked.

The only *objections* which can be urged against them are the extra cost and space necessitated as compared with other forms of desks. For these reasons they are scarcely ever adopted in English elementary schools; but while it must be admitted that these are very practical objections from the school manager's standpoint, it cannot be denied that they are far outweighed by the intellectual advantages conferred.

Dual Desks.—These are now largely used in schools, and by some makers an attempt has been made in their construction to partly secure the benefits of the single desk by providing separate seats, but while this is an improvement in one respect, it renders each seat shorter than it otherwise would be. At least 20 inches of sitting space should be allowed per child, and therefore the minimum length of an ordinary dual desk is 3 feet 4 inches.

The following are the *advantages* of dual desks:—

- (1) They permit ready access to, and supervision of, every pupil, and facilitate the removal of individuals without disturbing the other members of the class.
- (2) The class is rendered more compact than when long desks are used, space for standing behind the seats not being required, as scholars can stand in the gangways; the desks can thus be placed close up to each other from front to back.
- (3) They are much better adapted for use on stepped floors or galleries than long desks.
- (4) They are considerably cheaper than single desks.

The only *disadvantages* worth mentioning are:—

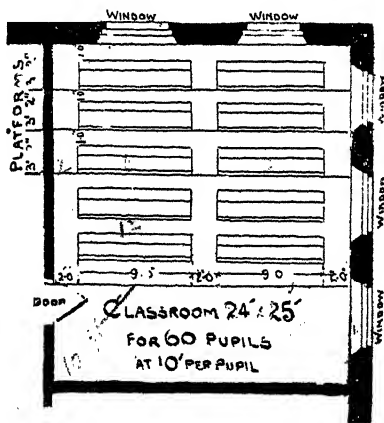
- (1) The nearness of each row of desks to those immediately in front or behind may facilitate communication or copying on the part of the scholars, though the teacher's vigilance should check this.
- (2) Independent effort is not fostered to the same extent as when single desks are used.
- (3) Dual desks are more expensive than long desks.

Long Desks.—In the long length system of arrangement the desks are usually placed in three parallel rows, with passages about a foot wide behind each seat, and gangways 18 inches or 2 feet wide between the groups and at the walls; four rows are allowed in schools whose width is not less than 21 feet 6 inches. When placed three rows deep, each desk should not be more than 12 feet long, and when four rows deep, not more than 9 feet long; for facility in re-arrangement, however, a uniform length of 9 feet is commonly adopted, and as a sitting space of 18 inches per pupil is sufficient in a long desk, it is evident that those in ordinary use will each accommodate six scholars. As in the case of dual desks, various manufacturers endeavour to secure isolation of the pupils to some extent by providing separate seats. The only real *advantages* which can be claimed for the long desk are:—

- (1) It is cheaper than any other type, in proportion to the number of pupils accommodated.
- (2) The work of the pupils is not overlooked by those behind, as in the case of dual desks, because long desks are further removed from front to back.

These benefits are more than counterbalanced by the following *disadvantages*:—

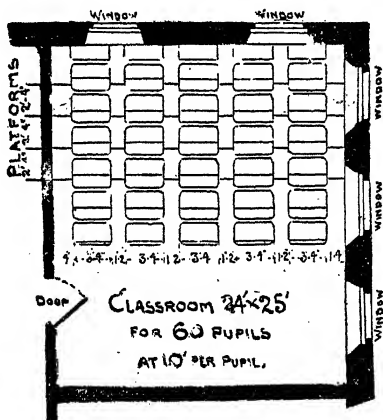
- (1) The teacher has not such ready means of access to each scholar as when dual desks are used.
- (2) The ingress or egress of individual scholars generally disturbs the other occupants of the same desk.
- (3) It is almost impossible to provide the seats of long desks with back-rests; if they are provided, the second objection is greatly intensified.
- (4) The lateral extension of the class is greater than in the case of dual desks; this makes it more difficult to control, and at the same time puts a greater strain on the teacher's voice and adds to the general noise.
- (5) Independent effort is fostered even in a less degree than when dual desks are used.



Plan of Arrangement for Long Desks.

Comparison between Dual and Long Desks.—The practical objections to the use of the single desk already stated have served to limit the choice of most elementary schools to the two remaining types. The particular advantages and disadvantages of each of these have just been summarised, and it now remains to decide which is to be preferred so far as facilities of arrangement and space are concerned.

With the minimum floor-space per unit of attendance allowed by the Code, a classroom 25 feet by 24 provides accommodation for 60 pupils in a school for older children. Using the long-length system this accommodation would require five rows, each containing two desks 9 feet in length, with passages 2 feet wide down the middle and along each side of the room. From front to back each row of desks will require 15 inches for the top, 9 inches for the seat, and about 12 inches for standing room behind, or 3 feet altogether; and thus the entire group from front to back would require at least 15 feet of floor space, leaving not more than 10 feet of unoccupied space in front of the class. The arrangement of the desks is shown in the accompanying sketch.



Plan of Arrangement for Dual Desks.

With the dual desk arrangement, six rows, each containing five desks, would be required, with passages 1 foot 4 inches wide along the sides of the room, and 1 foot 2 inches between each column of desks. No passages behind the seats are necessary, as the scholars stand in the gangways. Reckoning as before 15 inches for the top of the desk and 9 inches for the seat, the space occupied by each desk from front to back is 24 inches; thus the entire group from front to back measures 12 feet, leaving 13 feet of unoccupied space

in front of the class. The annexed plan shows how this arrangement may be carried out.

Owing to the slope of the back-rests, it is found that in actual practice a few inches of space from front to back in addition to that already stated will be taken up; but even when this extra allowance has been made, the fact nevertheless remains that for the same number of children the dual desk arrangement allows more floor space in front of the class than is the case when long desks are used.

Again, a schoolroom 44 feet long would allow 4 groups of long desks in 3 parallel rows, with passages 2 feet wide at the walls and 16 inches between adjoining desks. Each desk is 9 feet long, and accommodates 6 scholars; space is thus obtained for 72 scholars altogether. From front to back the depth of any group of desks is 9 feet.

With the dual desk arrangement the same room would allow 9 groups of desks, each 3 feet 4 inches long, together with gangways 1 foot 4 inches wide along the walls and between each group; a depth of 10 feet from front to back will allow 5 desks in each group, and thus there will be a total of 45 desks, providing accommodation for 90 children.

It is thus evident that for the same length of schoolroom the dual desk arrangement provides more accommodation than long desks.

Desks for Upper Departments.—These will vary in height and dimensions according to the age and size of the children. It is generally desirable to provide several sizes, of which the following may be considered typical:—

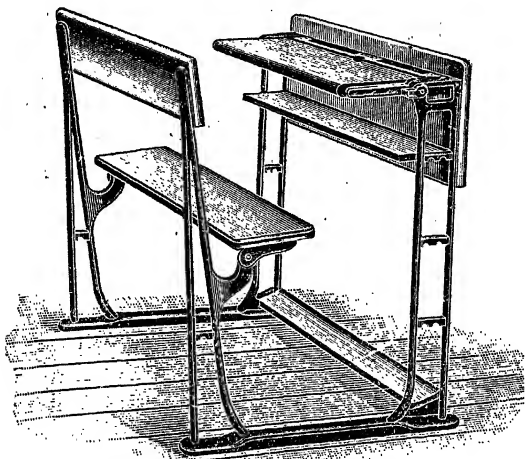
- (a) 20 to 25 inches high to middle of slope for the youngest children.
- (b) 22 to 26 inches high to middle of slope for the middle classes.
- (c) 26 to 30 inches high to middle of slope for the oldest scholars.

The width of the seat in all cases should be at least 9 inches; its height will be determined by that of the desk. For the youngest children the seats should be from 12 to 14 inches high; for the oldest 16 or 17 inches will generally be found sufficient. No seat should be considered complete without a back-rest.

Many forms of desk have the seat attached to its supports by hinges, so that it can readily be changed from the horizontal to the vertical position; this increases the space available for standing by

about half the width of the seat, and facilitates the passage of the scholars in and out of their places.

The sloping portion of the desk-top should be not less than 12 inches wide. This is often so arranged that it can be readily fixed at an angle of 45 degrees for reading and 15 degrees for writing. When fixed at the reading slope, additional space is gained for standing, or moving in and out of the desks.

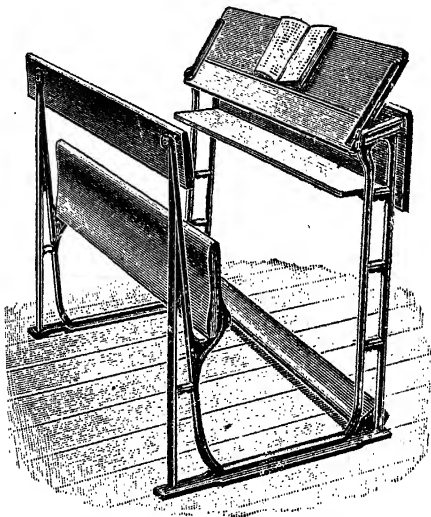


The "Perfect" Desk of the Educational Supply Association.

Objection has been raised to movable seats and desk-tops on account of the danger arising from careless children placing their fingers in the iron workings, thus running the risk of being severely pinched; this danger, however, may be minimised and even entirely removed by proper desk drill and vigilance on the part of the teacher. Any unevenness of surface on the desk-top caused by alteration of slope can be obviated by the employment of good workmanship and materials.

Along the front of the desk-top a flat portion about three inches wide is generally provided. This should be grooved along its entire

length for pens and pencils, and provided with holes at regular intervals for the insertion of ink-wells, which should be placed to the right of each child and sunk to the level of the desk-top. The ink-wells are best protected from dust by means of brass folding or sliding covers.



The "Perfect" Desk of the Educational Supply Association.

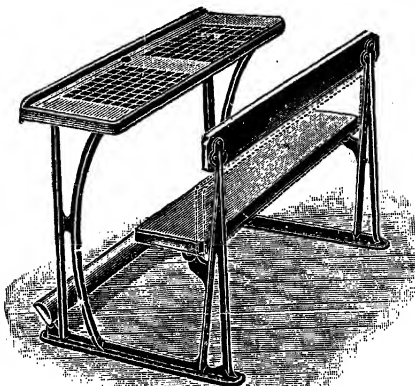
A bookshelf fixed about five inches below the top of the desk provides accommodation for spare books; this is sometimes partitioned off into equal spaces for individual children.

A slot of suitable dimensions is often cut vertically through the back part of the desk-top for the insertion of each pupil's slate, which is supported below by the bookshelf. In schools where slates are not used this is unnecessary.

The foot-rail often serves as a useful rest for the feet when the legs are extended during the writing lesson; it is therefore best fixed obliquely, so as to suit the position of the sole of the foot.

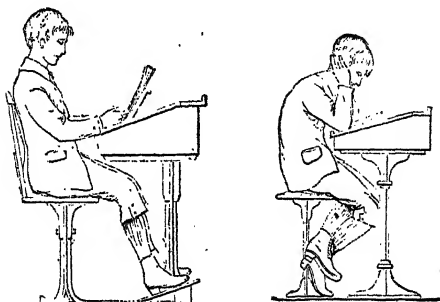
The accompanying sketches will serve to illustrate all the necessary requirements.

Desks for Infants.—The height of these varies from 18 to 24 inches, the corresponding seats being 10 to 12 inches high, and not less than $7\frac{1}{2}$ inches wide. The minimum sitting space allowed per child should be 18 inches. Curved back-rests should be provided, the centre of support being about 7 inches above the seat. The tops of the desks should be not less than 11 inches wide, and these should be flat for kindergarten but inclined at an angle of about 15 degrees with the horizontal for writing lessons. It is generally advisable to have entirely separate sets of desks for kindergarten and writing; those adjustable for both purposes are unsuitable, owing to the necessity of frequent alteration for different lessons, as well as liability to cause accidents. In many infant schools flat topped desks are used throughout.



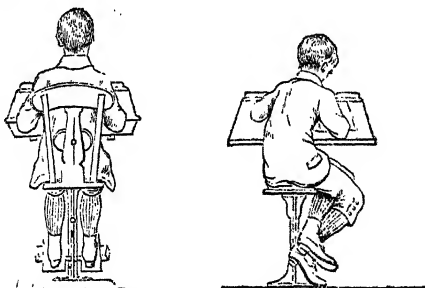
The above is a sketch of a very serviceable kindergarten dual desk designed by the Educational Supply Association to fulfil the requirements already mentioned. The woodwork is of the best pitch pine, with back to seat, bookshelf, slate slot and hollowed seat hinged to turn up, which allows the edge of the desk when used for writing to be vertically over the edge of the seat, yet ample room

is allowed for the scholar to stand comfortably. The desk is made in four heights, *viz.*, 24, 22, 20½, and 18 inches, to suit different



Healthy and Unhealthy Positions in Reading.

classes of infants. Each desk is 36 inches long, with 11 inch top and 7½ inch seat, and the floor space occupied from front to back is 28 inches.



Healthy and Unhealthy Positions in Writing.

Healthy Posture in Desks.—It is impossible to over-estimate the importance of hygienic construction in school desks, with a view to securing a proper posture during lessons. The accompanying sketches supplied by the North of England School Furnishing

Company, showing healthy and unhealthy positions in reading and writing respectively due to desk construction, sufficiently explain themselves, and emphasise the importance of a proper support for the pupil's feet and back, so as to avoid the risks of spinal curvature and short-sightedness, besides other evils.

Cupboards.—For the proper protection and storage of books, writing materials, and other appliances in daily use, every school should be provided with adequate cupboard space. A separate cupboard for each class, fitted with lock and key, and under the charge of the responsible class-teacher, should be provided whenever facilities are available. Glass doors are an incentive to tidiness, and these may either open in the ordinary way, or slide in separate grooves, so as not to project into the room when open. If the class teacher's desk is fitted with a cupboard of sufficient size, this may very well be used for the storage of class material.

Special cupboards with doors opening outwards should also be furnished with movable perforated trays instead of shelves, for ink-wells; others with shallow drawers are useful receptacles for kindergarten and needlework materials, etc.; and separate provision should be made for the proper disposal of scientific apparatus. A covered rack for drawing boards is a prime necessity in classes where these are used, if they are always to be kept in proper condition for work. Due precautions should be taken to keep the contents of every cupboard clean, orderly, and free from dust; and an accurate inventory showing the number of reading books, pens, rulers, etc., may advantageously be fixed on each cupboard door for reference.

Miscellaneous Fittings.

1. **Fireguards** made of strong vertical iron railings, from three to four feet high, should be provided round every grate when open fires are used. If the lower part is lined with sheet-iron for a height of about nine inches, it also serves as a fender.

2. **Window Blinds** must be provided for windows with a south, west, south-east, and south-west aspect. Brown unbleached calico or blue linen are generally considered the most suitable materials for affording sufficient protection from excessive sunlight.

3. A good **Clock, Thermometer, and Notice Board** are very necessary articles in the equipment of every school.

4. **Partitions and Curtains** have already been dealt with in the chapter on School Buildings.

II. Apparatus.—The term "School Apparatus" includes all the appliances and materials necessary for giving and illustrating various lessons.

Visible illustration is an indispensable auxiliary to oral instruction; by his words the teacher appeals to the sense of hearing, by the use of apparatus he appeals to sight, and thus each serves to supplement the other, and the two-fold appeal conduces to clearness and vividness of impression and fixation in memory.

Every branch of the curriculum requires in a greater or less degree its own special apparatus; other teaching aids, such as the blackboard, are required for practically every subject; and while it is true that lavish expenditure on materials cannot be an adequate substitute for imperfect methods of instruction, it is undeniable that no thoughtful teacher can afford to under-estimate the advantages arising from the use of suitable appliances. Although an efficient and sufficient supply of apparatus is essential, it is evident that for success in teaching the effective use of what is supplied is of far greater importance than its amount. In skilful hands, good apparatus facilitates and supplements oral teaching, removes misconceptions and difficulties, reduces the expenditure of effort on the part of both teacher and pupil, and materially increases the success with which the work is done.

It is beyond the scope of the present chapter to give anything like a full account of the various appliances required for teaching all the subjects of elementary instruction; we shall therefore confine ourselves to a brief review of the most important.

Blackboards.—Probably no piece of school apparatus is more valuable than the blackboard. Good teaching is practically impossible without its constant use, and therefore every class in the school should be provided with at least one blackboard, while two or three others will often be found useful for special purposes, such as sketch maps, drawing copies, music, etc., which may be required for several lessons.

Varieties of Blackboards.—The ingenuity of different makers has been productive of various kinds of blackboards, the four principal being:—(a) Those for use with easels; (b) Those fixed to walls (c) Sliding boards; (d) Swing boards.

Those supported on easels are generally made of light wood or papier maché; the other forms are made of wood, slate, or plate-glass which is ground on the writing surface and blackened at the back—the two latter materials being much more durable than wood, but considerably heavier and more expensive.

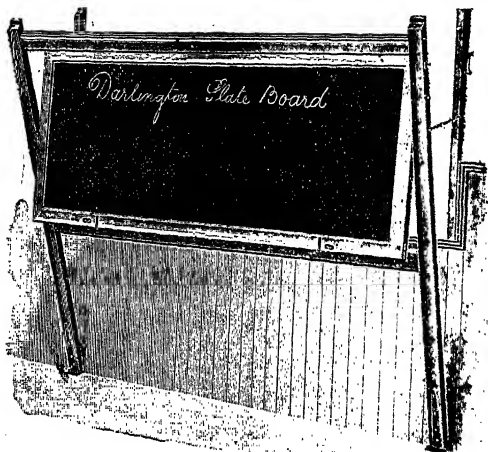
(a) **Blackboards for Easels.**—These are the commonest in use, and are generally made of pine, birch, or deal, clamped with iron strips. The advantage of this form of board is its lightness and cheapness compared with the others, as well as the ease with which it can be carried about or stored when not in use. In girls' and infant schools the blackboards are sometimes made of papier maché or thick cardboard blackened on both sides, these materials being lighter than wood. The most serviceable kind of easel is the double one furnished with a map support; the lighter forms with only one support behind, and the folding tripod, are apt to be unsteady and easily upset.

(b) **Wall Blackboards.**—Where a large writing surface is required these are exceedingly useful, provided they can be conveniently fixed with regard to the classes. They are always ready for use and never interfere with class movements; and since they are not required for removal they are generally much larger than movable boards, sometimes occupying the whole of the wall-space in front of the class for a width of several feet; in fact, in some American schools a wall blackboard four or five feet wide is provided all round the room—this arrangement being specially useful for free-arm drawing. Instead of being fixed, some wall blackboards are fitted with counterbalance weights and arranged to slide after the manner of sash-windows; by this means they may be easily adjusted to any convenient height for writing and drawing.

(c) **Sliding Boards.**—These are generally provided with the balancing arrangements already mentioned, and fitted in a frame which runs on casters. When large, they serve the same purposes as wall boards, their only drawbacks being the space taken up and the difficulty of ready movement from place to place owing to their weight.

(d) **Swing Boards** are of various designs; some turn on vertical pivots, while others swing like a looking-glass. They often serve to economise the teacher's time, being specially useful when he wishes to quickly remove from the sight of his pupils a large amount of

information which has previously been written on the blackboard and which will be required for a subsequent lesson; they also have the further advantage of being adjustable to any angle at which work can be most conveniently seen by the scholars. When large they have the same disadvantages as sliding boards.



(North of Eng'and School Furnishing Co., Ltd., Darlington.)

One of the best forms of wall blackboard is the *Darlington Slate-board* manufactured by the North of England School Furnishing Co., Darlington. This is shown in the accompanying sketch. It can be adjusted to various angles, may be used on both sides (as it revolves in its frame), takes up less space, and is cheaper than most ordinary swing or sliding boards.

Whatever form of movable blackboard is used, it should be so placed before the class that all may readily see what is written upon it. The best position is in front of the class, slightly towards the right of the children. On no account should it be fixed nearer to the class than half the length of the front row, and at this distance the height of the board which is most convenient for the teacher will generally be found best adapted to the class.

Uses of the Blackboard.—The importance of the blackboard for purposes of class-teaching can scarcely be over-estimated. There is no subject in the curriculum for which it cannot profitably be used ; and probably there is no better test of the practical skill of a teacher than the ability and readiness with which he avails himself of its varied uses.

The following is a brief summary of the principal uses of the blackboard in different lessons.

1. **Reading.**—New and difficult words may be written on the blackboard prior to the reading lesson. Such devices as writing in syllables, and distinctively marking silent letters, aspirates, final consonants, etc., may be adopted. Any points of interest in the reading matter should be briefly summarised on the board as the lesson progresses, together with sketches, diagrams, etc.; these may afterwards be utilised for purposes of questioning, or for composition exercises.

2. **Writing.**—For teaching purposes, carefully written copies on the blackboard are generally superior to engraved headlines, as the children take more pains to imitate what they see done by the teacher ; mistakes can also be readily pointed out, exaggerated, and the means of correction shown. Abstracts or outlines of stories, essays, letters, etc., can also be written on the blackboard and utilised for composition lessons. For all writing lessons the blackboard should be ruled to correspond with the paper or slates used by the children.

3. **Arithmetic.**—Illustrations and proofs of rules, explanations and model solutions of typical problems, and neat methods of setting down work can be shown.

4. **Oral Lessons.**—In Grammar, Geography, History, Object, and Science Lessons a summary of the chief facts taught should be written on the blackboard as the lesson progresses, details and sketches being inserted where necessary. This summary will assist the pupils to grasp the logical connection of the various parts of the lesson, and at the same time will provide suitable material for revision purposes ; in the upper classes it may be copied by the children into their note-books.

5. **Drawing.**—Every lesson should involve the frequent use of the blackboard ; freehand, model, geometry, and drawing to scale should always be taught by means of blackboard demonstration, even

though printed copies are used as well. A prepared surface of slate-cloth, of convenient height for the children, and extending along one side of the room, is useful when free-arm drawing is taught.

Slates.—Many teachers now prefer to use paper for writing, drawing, and arithmetic from the very earliest lessons, the habits of accuracy and neatness thereby fostered being ample compensation for the additional expense, while the difficulty of managing pens and ink can be avoided by using lead pencils for the youngest children; others, however, begin with slates. If these are used, the most convenient sizes are 7 inches by 5 (inside measurement) for infants, and $9\frac{1}{2}$ by 7 for older scholars. Only framed slates should be allowed, and the frames should have rounded corners bound with strong wire. The slates for each class should be ruled according to a uniform pattern for writing on one side, leaving the other side plain for freehand drawing, though in infant schools this side may be ruled or painted in squares for Kindergarten Drawing Exercises.

The *advantages* claimed for the use of slates are:—

- (1) They are more economical than paper.
- (2) They allow more rapid progress in the earliest lessons.

The chief *objections* to them are:—

- (1) The ease with which mistakes can be corrected often makes children careless.
- (2) They are noisy and cumbersome; proper supervision and the provision of slots in the desks, however, will minimise these objections.
- (3) The cleaning of slates is often filthy and dangerous to health; though this drawback may be removed by providing slate sponges and alternate wide-mouthed ink-wells filled with water, so that children may clean their slates readily.
- (4) The ruling of slates is rarely satisfactory; grooved lines cut into the slate are necessary for beginners, but these are not without disadvantages, as the pencil sometimes gets into the groove at the turnings of the letters. Similarly when slates are ruled into rhomboids for Mulhauser's system of writing the multiplicity of grooves may cause more hindrance than help.

Some Education Committees have abolished slates entirely from the schools under their authority. This is the case with practically all the schools under the London County Council as well as in many Continental and American schools.

In view of the objections mentioned above it may be doubted whether much money is saved by using slates, as the original cost of really good ones is considerable; broken ones have frequently to be replaced; pencils and pencil-holders soon wear out; and sponges do not last long, or are often lost. On the other hand, paper, pens, and ink are now very cheap, and lead pencils cost only a fraction more than slate pencils. The ruling of paper, moreover, can always be made more satisfactory than that of slates.

Pencils.—In order to ensure good writing and drawing, it is essential that pencils should be well sharpened and of sufficient length; pencil-holders will serve to use up short pieces. Much better work can be done with a long sharp pencil than with one which is short or blunt; joinings can be more carefully made and strokes formed much more clearly, and at the same time the child is encouraged to try harder to make progress.

No pencil should be so short as to extend less than an inch and a half beyond the finger tips, and three inches above the knuckle of the forefinger. As the use of the pencil is preparatory training for the pen, it is essential that pencils or pencil-holders should be of similar length to the pen, otherwise the child will acquire bad habits in holding his pen and these will prevent good writing. When the pencil is too short the child grasps it near the end, cramping his fingers and thus interfering with freedom of manipulation.

Blackboards and slates are used in both upper and lower departments of schools. We now proceed to briefly consider a few of the special teaching appliances which are adapted to the respective requirements of infants and older scholars.

SPECIAL APPARATUS FOR INFANT SCHOOLS AND CLASSES.

In the Infant School the main object is to exercise the senses of the children, and to unfold and develop the powers of mind and body, rather than to teach any particular branch of knowledge. The special appliances should therefore be such as will assist the teacher in cultivating the powers of observation and the general intelligence of the children, and to this end lessons on *objects* and *pictures*, and on *form* and *colour* will occupy a prominent place in infant school instruction.

I. Colour, Form, and Kindergarten Apparatus.

(a) The first of these will comprise boxes of different coloured tablets for each child, sheets with the primary colours placed side by side for comparison and contrast, and others containing both primary and secondary colours. In addition to these, a large variety of other specimens should be provided, such as balls of various colours, skeins of coloured wool and thread, pieces of coloured paper, ribbon, or cloth, flowers, beads, marbles, wafers, etc.; the colours used in brush-drawing may also be utilised for the same purpose.

(b) Lessons on form will require boxes of sticks of various lengths, small wooden bricks, wooden models of various forms, sets of plane figures cut out of thin hard wood, and pictorial representations of these solids. Simple exercises in arranging sticks, plane figures, and solids into various patterns, and in pointing out figures named by the teacher may thus be given in abundance, and these will be continued by the building and mosaic exercises of the later Kindergarten Gifts.

(c) The most important appliances for Kindergarten teaching are the gifts as arranged by Froebel. These really form a carefully graduated series of toys, but while they possess all the novelty of playthings, they afford at the same time the best means of cultivating the various capacities of the child. They are usually denoted by numbers as follows:—

Gift I. consists of six coloured woollen balls—three primary colours (red, yellow, and blue) and three secondary colours (orange, green, and purple); the principal aim of these is to teach colour and direction.

Gift II. consists of a sphere, a cylinder, and a cube of wood. These are intended to teach comparison and contrast of forms.

Gift III. is a large cube, halved along its length, width, and height so as to form eight equal cubes; from these may be built up a number of useful artistic and geometrical forms, and on this account the third gift is often called the *First Building Box*. Inventiveness and symmetry of arrangement are thus fostered, while elementary notions of fractions, of addition and subtraction, and of the relation of the whole to its parts, may be given.

Gift IV. consists of a large cube divided into eight oblong prisms, in each of which the length is twice the breadth, and the breadth twice the thickness. This forms the *Second Building Box*, and extends the exercises of building and pattern-forming begun in the previous gift, with which it may be usefully combined.

Gift V. is an extension of Gift III., and consists of a large cube divided into twenty-seven small cubes, three of which are sub-divided diagonally into halves, and three others into quarters. This extends the teaching of form and number, and gives a greatly enlarged series of building exercises and designs, on which account it is termed the *Third Building Box*.

Gift VI. is an extension of Gift IV., and forms the *Fourth Building Box*. It consists of a large cube divided into eighteen whole and nine small oblong blocks, enabling still further advance to be made in construction, form, and number.

Gift VII. consists of a set of square and triangular tablets, made of polished wood in two colours, and supplying material for numerous exercises in symmetrical arrangement and mosaic work. This gift is usually divided into a number of sub-gifts, introducing in succession the square and various kinds of triangle.

The first gift is intended to develop the faculties of the child, the eyes, ears, and limbs being exercised in following the movements of the different balls, which are generally suspended by means of strings; the second gift introduces the simplest form of figures with surfaces; while the remaining gifts follow in progressive order with other figures which can be produced from one or more of those which have preceded.

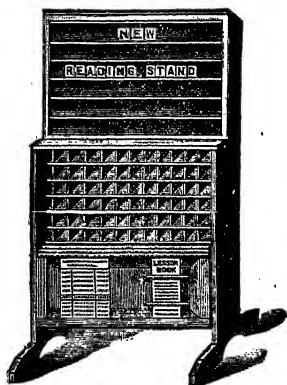
Froebel's gifts have been greatly amplified by the introduction of numerous simple exercises in hand and eye training, of which the following are examples:—stick-laying, paper-folding, fraying, bead-threading, embroidery of objects or designs in outline on perforated cards and mats, mat-plaiting, basket-weaving, modelling in cardboard and clay, paper-flower making and brush-drawing. These are usually classed under the general name of Varied Occupations. The apparatus required for each is indicated by the name of the exercise.

II. Apparatus for the Elementary Subjects.

(a) **Reading.**—The forms of the letters are most intelligently taught by means of the Kindergarten Alphabet Box. This contains straight and curved strips of cardboard of different lengths and colours, and

under the teacher's guidance the children place them so as to form the letters, which are arranged in groups according to similarity of shape. As soon as each group of letters is known, simple words and phrases are built up in the same way. Kindergarten sticks, picture cards, giant letter cards, and alphabet blocks may also be used, the children being required to form the letters as a stick-laying exercise, and afterwards to find them from the cards and blocks, or point them out on an alphabet sheet. Accompanying all these exercises should be simple drawing lessons in which the shapes of the letters are drawn on slates, sand, or paper.

For early exercises in Word Building, the Spelling Frame or Reading Stand will be found of special service. Of this there are



several forms; the cheaper kinds consist merely of a box containing the separate letters arranged in compartments, and a lid with grooves in which the letters may be placed. A much more useful form is the New Reading Stand manufactured by the Educational Supply Association and shown in the accompanying sketch. This is furnished with 420 separate letters, and the back of the stand is provided with a black-board.

Whether the use of Reading Sheets or Primers should be permitted in the Infant School is a question on which opinions

are divided. Some authorities would base the reading lessons mainly on previous object-lessons, and build up simple sentences relating to them on the blackboard; but while from a theoretical standpoint this might seem the ideal course to pursue, experience has proved that even when the plan is followed the children will read all the better after working through several sets of carefully graduated Picture Reading Sheets, printed in bold type. To a certain extent the character of these sheets will be determined by the method of teaching the subject which is adopted.

Reading Primers, if used, should follow the methods already indicated in the Reading Sheets; in fact, the first few lessons may advantageously be identical with those given on the sheets. Plenty of illustrations (coloured, if possible) should be provided; the type should be large and bold, and the binding strong and attractive.

(b) **Writing and Drawing.**—In the earliest lessons these two subjects are very much alike, and the same methods of teaching may be adopted for both. The blackboard should be constantly used for illustrating processes of formation as well as for pointing out errors, and it should be ruled to correspond with the materials used by the children. The slates or paper used for writing should be ruled with lines about $\frac{3}{8}$ of an inch apart, and a thinner line between these will generally be useful for determining the position of the joinings. For drawing exercises the slates should be ruled or painted in squares of about $\frac{1}{4}$ inch side.

Kindergarten copy-books are provided with various mechanical aids for both writing and drawing, with reference to relative size, distance, and slope.

For the youngest children lead-pencils are preferable to pens for writing on paper.

(c) **Number.**—The child's earliest ideas of number are derived from association with concrete things, and progress may best be ensured by utilising as wide a variety of objects as possible, such as sticks, pencils, beads, number pictures, various kindergarten gifts and occupations, etc. The abacus or ball frame may also be used for exhibiting all the elementary numerical operations; the better forms are provided with both vertical and horizontal wires, and balls of different sizes and colours, so that local value may be more readily shown, and one half of the frame is covered by a sliding blackboard, so that the teacher may display just as many balls as are suited to her purpose. In all cases the concrete operations should be considered simply as a means to an end, and should be abandoned as soon as the learner has grasped the idea of abstract number; it is not, however, by any means necessary that arithmetic in an infant school should be done on slates or paper. Oral arithmetic is quite sufficient at this stage.

III. Apparatus for Object Lessons.—No topic should be chosen for an object lesson unless the teacher is able to thoroughly illustrate the lesson by means of the object itself, or by some adequate repre-

sentation of it. To some extent the locality of the school will be an important factor in the selection of lessons, though not so much with regard to infants as older scholars; but in all cases a collection of suitable specimens, models, and pictures should be provided. These will constitute the basis of a school museum, of which the contents in an infant school will fall into such groups as the following:—

- (a) **Natural History.**—Pictures of animals, and specimens of animal products.
- (b) **Articles of Food.**—Specimens of various kinds of grain, sugar, tea, coffee, cocoa, etc., with illustrations of their manufacture.
- (c) **Articles of Clothing.**—Cotton, wool, silk, leather, etc., in various stages of manufacture.
- (d) **Mineral Substances.**—Salt, coal, slate, building stone of various kinds, etc.
- (e) **Pictures Illustrating Common Employments.**—The farmer, postman, builder; a railway station, cotton mill, post office, etc.

Further details with respect to school museums will be found towards the end of the present chapter.

SPECIAL APPARATUS REQUIRED IN SCHOOLS FOR OLDER SCHOLARS.

1. **Reading Books.**—For the two lowest classes two separate sets of reading books must be provided, each containing not less than eighty pages of reading matter, irrespective of illustrations, word-lists, etc. In the other classes at least three sets of reading books should be available, each containing not less than 120 pages of reading matter; and one set should relate to English history. In small schools two sets of reading books are considered adequate, though three would be better.

The *advantages* of having several sets of reading books for each class are:—

- (a) Greater variety of reading matter is provided, and *interest* is therefore more readily sustained.
- (b) The stages of teaching can be more carefully graduated than if only one book were used.
- (c) The vocabulary of the pupils is widened, and their knowledge is increased to a greater extent.

If only one set of books were permitted the children would necessarily read them so often that (in some instances at least) entire passages would be committed to memory, and these might be simply *repeated* instead of *read*, thus giving rise to habits of carelessness, as verbal alterations and neglect of expression would be almost inevitable after frequent repetition. Furthermore, the children constantly require something fresh to stimulate and excite them if a love of reading is to be promoted; hence the greater the variety provided the better. A book which contains twice the minimum amount of reading-matter prescribed for one year may remain in use for two years; but such a book cannot be considered equivalent to two separate books for use during a single year.

Selection of Reading Books.—The choice of a school reading book should be chiefly determined by the following considerations:—

- (1) It should be written in good English.
- (2) The lessons must be carefully graduated according to the learners' progress; *simplicity* should be the leading feature of books for lower classes, excellence and variety of style for higher classes.
- (3) Both as regards subject and treatment the matter must be such as will appeal to the feelings and experience of the pupils and foster a taste for reading.
- (4) The lessons must be well illustrated; the type clear and bold; and the binding strong and attractive.

For younger pupils simple anecdotes of animals, stories from history, fables, fairy tales, and stories of heroism and adventure afford suitable materials for reading; in the higher classes narratives of travel and adventure, biographical sketches of the great and good, historical incidents, spirited poetry, and suitable dialogue may be included. Interesting science lessons may also occasionally find a place, but difficult technical terms should be avoided as far as possible. While the reading book must not contain anything of the nature of direct religious instruction there may nevertheless be included lessons which serve to illustrate the importance of thrift and temperance, and to inculcate high moral purpose and the appreciation of what is noble and true and beautiful.

The size of the type in which Reading Books are printed has a very important bearing upon the eyesight of the children, and should therefore receive special consideration. For young children no reading books should be printed in a type smaller than Pica*, and for pupils of any grade the type should never be smaller than that known as Long Primer†. In any case, the type should be

*This foot-note is printed in Pica type.

†This line is in Long Primer.

easily legible at a distance of at least twenty inches, and should not cause any strain upon the eyesight, nor necessitate the book being held too near the eyes. Generally speaking, the younger the children the larger should be the type; but in the case of children of weak eyesight it is desirable, whenever possible, to procure reading books printed in specially large type.

Variety in Reading.—In order to develop a liking for the subject in the children, plenty of variety in reading matter must be provided. There is no doubt that the *best* reading books, especially for older scholars, are those which are descriptive and explanatory, are suitably illustrated, and contain a sufficient amount and variety of interesting matter. In addition to the ordinary class books, a good supply of supplementary “readers” may be obtained at very small cost; while in the higher classes, school periodicals such as *The Scholars' Own*, *Collins' School Newspaper*, and *Longman's School Magazine* will be found useful in widening general intelligence and in giving an interest in current events. In some schools a “Scholars' Reading Room” has been established with excellent results; various publishers of high-class periodicals will gratuitously provide a plentiful supply of back numbers, and a few other suitable current papers can be purchased at very little expense; while the post of curator can be filled by an elder scholar as a reward for good work in school, the members being admitted before or after the ordinary school hours. This Reading Room may be advantageously combined with a School Library.

Continuous Narratives as Reading Books.—One set of the school reading books may be written in the form of a continuous narrative, and suitable editions of well-known literary works are now obtainable. These are specially adapted to what may be termed the *higher intellectual stage* of reading, in which the aim of the teacher is to introduce the pupil to some of the literary masterpieces of his own country, and by so doing to stimulate a love of reading as well as to foster good taste in the choice of what is read. The *advantages* of the continuous narrative are:—

- (a) New matter and fresh episodes are introduced in a gradual and natural order.
- (b) The knowledge already gained becomes available for use in later stages.
- (c) The reader's interest is maintained from one lesson to another, owing to the fact that he is brought into continued contact with the adventures of the characters mentioned in the book.

- (d) Ability to sustain the effort of reading over a prolonged period is obtained, and thus the pupil is prepared to read a complete work with pleasure and profit.
- (e) When judiciously selected, complete works are more likely to foster a love of reading and a taste for good literature in elder scholars, than mere collections of miscellaneous extracts.

Reading Books in Special Subjects.—While mere text-books or manuals cannot be sanctioned as reading books, it is evident that brightly written and well-illustrated geographical, historical, and elementary science readers may be made valuable instruments of instruction in these subjects. Such books should be used in all classes except the two lowest, and even here they are desirable. The chief *advantages* of these books are:—

- (a) The subject is invested with additional interest.
- (b) Greater definiteness is given to the teaching.
- (c) Recapitulation is easier and more effective.
- (d) A spirit of inquiry and love of study may be aroused, which will be carried by the pupils through life.

Care should be taken that the books are written in a simple and interesting style, that both matter and language are carefully graduated, and that technical terms, tabulation of names, statistics, etc., are as far as possible avoided.

II. Writing Materials.—The importance of the blackboard for every writing lesson has already been emphasised. It should be ruled to correspond with the slates or paper used by the children; for clearly demonstrating uniformity of slope, distance, and size, however, a blackboard ruled with Mulhauser's rhomboids will often be found useful, even though his method is not followed in all its details.

Whether slates or paper should be used by the youngest pupils is merely a matter of opinion; paper must be used in all except the two lowest classes, however, and therefore where practicable its use throughout the school is advisable.

Good writing cannot be obtained with poor materials; the paper, ink, pens, and holders must all be of the best quality in order to produce thoroughly satisfactory results. With the same end in view no teacher can afford to neglect such apparently minor details as the proper cleaning and preservation of pens, the periodical washing of ink-wells, and their protection from dust by means of covers when not in use, and the careful distribution, collection, and
of copy books and note books.

In each class the ruling of the paper or slates must be uniform. For the youngest scholars (corresponding to Standard I.) the copy should be written between lines a quarter of an inch apart; for the next higher class the width may be reduced to a fifth of an inch; if double lines are used in the middle classes of the school they should not be more than an eighth of an inch apart; above this the ordinary single ruling should be used, and the size of the writing (exclusive of loops or strokes above and below the line) should not be less than a tenth of an inch; smaller writing should not be permitted on any account.

Copy Books.—Given a teacher with considerable skill in penmanship, and the only apparatus necessary for writing lessons will be a suitably ruled blackboard for the teacher's copy and for pointing out errors, and plain ruled exercise books for the writing practice of the children. Under the old method, the copy at the head of the page was written by the teacher for each pupil separately, and this plan is still strongly advocated by some, though the size of the classes in many schools now renders it impracticable; the introduction of copy-slips was intended to overcome this difficulty, but owing to the time lost in their distribution, their liability to get torn or dirty, and the frequency of their neglect by the pupils after copying the first line, these are now rarely used. In addition to the blank book the only other plan in general use is the copy book with engraved headlines.

Selection of Copy Books.—In choosing a series of copy books with headlines the chief points to be considered are the following:—

- (1) The lessons should be very carefully graduated so as to suit the pupils' progress, and the style of writing should be uniform throughout the series.
- (2) The letters and their combinations should be arranged in groups according to similarity of construction.
- (3) In the earlier copy books mechanical aids, such as vertical and oblique lines, tracing, etc., should be provided; in the higher numbers there should be a suitable variety of exercises, such as bills, business forms, letters, etc.
- (4) The slope of the writing should approach the vertical; and whenever possible corresponding capital and small letters should have the same shape.
- (5) The forms of the letters should be simple, clear, and bold, with the junctions arranged so as to secure continuity; and all unnecessary lines or flourishes should be omitted.
- (6) The book should be oblong in form, with the headlines printed lengthways; the paper should be good; and each page should contain at least two copies.

The chief danger of copy books with engraved headlines is that after the first line or two the child will imitate his own writing instead of the copy, and various devices have been adopted in order to prevent this; the most successful appears to be the provision of movable headlines in which the copy is written once only, but after all this is mainly a matter of careful training and supervision.

In all classes except the highest, copy books should be shown to the Inspector whenever he desires to see them; in the highest class note books and exercise books must be shown.

III. Apparatus for Arithmetic.—It has been already stated that a child's earliest ideas of number are gained through association with objects; hence the importance in the elementary stages of placing before him *visible* and *tangible* illustrations of the truths to be taught.

(a) *The Simple Rules.*—In dealing with the so-called "four simple rules" the pupil is learning all the arithmetical operations which he is required to perform—the later processes are simply applications and combinations of these—and when once the early "rules" are intelligently understood, further progress is greatly simplified.

In explaining the principles of Numeration and Notation many teachers rely mainly upon the ball-frame and blackboard; formerly the ball-frame was the only special arithmetical aid used in many schools; but while it is quite possible to fully illustrate the early processes with no other assistance than this, the lessons may be rendered much more interesting and far better results may be obtained by the use of a wide variety of less formal apparatus. If in different lessons such objects as marbles, sticks, penholders, buttons, rulers, cards, dominoes, nuts, etc., be used, the children will soon learn to regard number as a *general* property of things; while such a variety of cheap material also enables the operations to be performed by each child, which is not always possible when the ball-frame alone is used.

The materials used in Kindergarten stick-laying exercises afford a cheap and effective means of visibly explaining all the early operations of arithmetic. Separate sticks or short laths may represent *units*; bundles each containing ten sticks will represent *tens*, and groups containing ten bundles tied together will serve for *hundreds*. For other lessons single marbles may represent *units*, bags containing ten marbles each will denote *tens*, and boxes each

containing ten bags will represent *hundreds*. Similarly, on another occasion a few loose buttons may be used as *units*, stiff cards with ten buttons stitched on each will represent *tens*, while larger cards each containing a hundred buttons placed in rows of ten will serve to denote *hundreds*.

A *Numerical Box* containing separate compartments for units, tens, and hundreds will be found a useful aid with any of these materials. Such simple appliances will be found invaluable for visibly illustrating the following processes:—

- (a) Place value.
- (b) Decomposition of numbers.
- (c) Addition of numbers with or without “carrying.”
- (d) Subtraction by the method of complementary addition, decomposition, or equal additions.
- (e) Multiplication and division.
- (f) Arithmetical tables for addition, subtraction, multiplication, and division.
- (g) Elementary notions of fractions may be taught both by means of these objects and also with the help of divided Kindergarten Cubes.

In conjunction with these tangible illustrations, the corresponding abstract numbers should be written on the blackboard.

Number Pictures are intended to represent the earlier numbers and their composition and combinations in a variety of ways, and may profitably be used with any of the objects already mentioned. Various kinds have been devised; some are in the form of giant figure tablets; others are designed to resemble dominoes; others again are simply pictures of common objects so drawn that the numerical arrangement is striking to the eye; the use of special illustrations of this kind, however, is not really necessary, as equally serviceable Number Pictures can be sketched by the teacher on the blackboard. By arranging each of the earlier numbers in a form peculiar to itself the eye gradually learns to recognise it, and when the first ten numbers have been taught by means of *real objects*, they may be shown *pictorially* on these diagrams, and afterwards *symbolically* by ordinary figures on the blackboard. The chief use of the Number Picture is thus to bridge over the gap between *concrete things* on the one hand and *abstract numbers* on the other.

Messrs. Sonnenschein and Nesbitt, by whom the idea of Number Pictures was introduced into England from the German schools, have also invented an ingenious apparatus for concretely representing numbers from unity to a million. They have devised small cubes

measuring a centimetre along every edge, to denote *units*; ten cubes placed end to end and alternately coloured white and black represent a "stave" or *ten*; ten "staves" placed side by side form a "plate" or *hundred*; and ten "plates" (consisting of a hundred "staves" or a thousand small cubes) form a *thousand*; further arrangements are used to illustrate ten thousand, a hundred thousand, and a million. The apparatus will be found useful at many stages of the course of arithmetic; *e.g.*, H.C.F., L.C.M., fractions, decimals, square and cubic measure, square and cube root, parts of the metric system, etc., may all be illustrated by its aid; but it is obvious that all such contrivances must be dispensed with as soon as the ideas of abstract arithmetical processes have been thoroughly grasped.

(b) *The Compound Rules.*

- (1) A good supply of actual or imitation coins will be found specially useful in teaching Reduction, Addition and Subtraction of Money, Bills of Parcels, etc. For rapid addition of money a Tot Frame is almost indispensable; and various forms of this apparatus are now obtainable.
- (2) In teaching Long Measure, a draper's yard-stick, a foot rule, and a builder's tape measure should be used. Feet and inches should be marked along the edge of the blackboard or along the edge of the doorway or window, and a height line should be marked from the floor to the ceiling in a prominent place on the schoolroom wall. The dimensions of the schoolroom and playground should also be obtained by means of the tape measure or chain, and other well-known distances in the neighbourhood should be measured by the scholars and recorded on a plan of the school and district. Similar methods may be followed with regard to square measure.
- (3) The connection between long, square, and cubic measure may be readily shown by means of an apparatus similar to that of Messrs. Sonnenschein and Nesbitt already described, except that *twelve* small cubes (measuring an inch along each edge) should be placed together to form a "stave," instead of ten. A wooden box measuring a foot along every edge will serve the same purpose. The box itself will represent a *cubic* foot; each surface will represent a *square* foot; and each edge will measure a foot in *long* measure. If inch

divisions be marked along every edge and joined by straight lines it will be at once seen that 144 square inches make a square foot; and that twelve layers, each containing 144 cubic inches, will make up the entire cubic foot, which will thus contain 1728 cubic inches altogether.

- (4) For teaching Avoirdupois Weight a pair of scales and a set of the weights in ordinary use should be provided; similarly measures of capacity (gallons, quarts, pints, and gills) should also be furnished; and by actual weighing and measuring with sand or other convenient materials the scholars may be led to build up the tables for themselves. The Metric Weights and Measures may be dealt with in the same way.

(c) *Higher Rules*.—After working through the earlier stages according to the illustrative principles already laid down, children should be able to grasp the later rules of arithmetic with very little difficulty. Blackboard illustrations, however, should be freely used in all stages of teaching.

IV. Apparatus for Geography Lessons.

(a) *Models*.—The most interesting and instructive method of explaining and illustrating Geographical definitions, or the chief physical features of a country, is by means of a clay or sand model, which should be made during the course of the lesson. A flat board about a yard square, or an old blackboard with a beading round its edges will be needed for the purpose; and specially prepared clay (known as *Plasticine*) which can be used over and over again, may be cheaply procured, though ordinary clay or wet sand can be used with almost equal success. More durable models may be made of putty, Parian cement, plaster, or papier maché, and these may be painted and varnished. As a general rule it will be necessary to considerably exaggerate the vertical scale; but a contour model of the school-district may be constructed approximately to scale with cardboard, the various heights being represented by different layers.

With a little ingenuity, home-made appliances may be devised to illustrate most of the simpler phenomena in physical and astronomical geography; e.g., a long glass-fronted trough with a perforated ice-box at one end and filled with tepid water, will serve to illustrate the movements of currents between the tropics and the poles; a

serviceable working model of the mariner's compass can be made out of an ordinary collar-box, with a circular cardboard disc bearing the thirty-two points, and having a magnetised bar of steel underneath balanced on a wooden peg; and in the same way smaller models may be constructed by the children out of pill-boxes. A set of coloured wooden balls of various sizes, mounted on wire stands, may be successfully utilised for illustrating such phenomena as Day and Night, the Seasons, Eclipses, and the motions of the planets.

Among other more expensive aids to geographical teaching may be mentioned the globe, tellurian, selenotrope, orrery, geodescope, and planisphere. The first of these should be found in every school; for purposes of ready reference and in order to familiarise the children with the relative positions of places on the earth's surface, at least one portable globe should be provided, having a diameter of about 18 inches and rotating in a semi-circular brass meridian. The other aids, though exceedingly useful, are generally beyond the means of elementary schools, but a brief description of each will, perhaps, not be out of place here. The *tellurian* shows the rotation of the earth accompanied by the moon round the sun, which is represented by a lamp or candle; it may, therefore, be used to illustrate and explain such phenomena as eclipses, perihelion, aphelion, and tides. The *selenotrope* is an ingenious contrivance for illustrating the phases of the moon; while the *orrery* is intended to illustrate the entire solar system. The *geodescope* is a combined celestial and terrestrial globe, the heavens being represented by a hollow glass globe in the centre of which the earth is suspended. The *planisphere* is designed to indicate the principal stars visible in our latitudes for every day or hour in the year, with the variations of sunrise and sunset.

Photographs and pictures of natural scenery, manners and customs of various nations, famous buildings, etc., will be found of special service for lessons in descriptive geography. The interest of the pupils may often be stimulated by encouraging them to collect foreign stamps and suitable picture post-cards; and (where procurable) specimens of the staple productions of various countries should be furnished. When not in use these should occupy a place in the school museum; though some may be used for purposes of school decoration.

(h) **Maps.**—The transition from models of the actual land surface to plans and maps may take place most readily by means of picture maps, which aim at representing geographical features pictorially

in the form of a bird's-eye view. These are specially useful for introductory lessons on geographical terms, as they prepare the way for the ordinary map, which simply represents these features *symbolically*, and thus the impressions of the child which are derived from the picture serve as a key to the interpretation of the map itself.

An adequate supply of ordinary maps is of primary importance in every school, not only for lessons in geography and history, but also for readily indicating the position of any place incidentally mentioned in the other lessons.

A thoroughly serviceable school map should possess the following characteristics :—

- (1) It should be large enough for purposes of class teaching.
- (2) It should contain no unnecessary names or details.
- (3) It should exhibit the physical features clearly and boldly.
- (4) It should be artistically coloured and well varnished.

In other words, a good school map should be *clear, bold, and artistic*, but neither *over-crowded* nor *under-sized*.

Relief maps are designed to show the principal physical features of a country *in relief*, and may thus be used as fairly satisfactory substitutes for models. By means of different methods of shading and colouring an approximately correct idea is given of the contour of a country.

Outline maps and maps without names (sometimes termed *Test maps*) are useful for purposes of revision, but the most effective aids of this kind are those prepared by the teacher. These are best sketched with coloured chalks on a spare blackboard or slate-cloth, the various details being inserted during the progress of the lesson; and thus at its conclusion they will show all the facts taught, and no more. When well drawn they have a pleasing and artistic effect, and may be preserved for a considerable time.

The *most useful maps* of this description will be:—

carefully drawn plan of the school premises and their immediate surroundings.

- (b) A map of the school district enlarged from the Ordnance Survey.
- (c) An outline map of the county in which the school district is situated, with the most prominent details marked.
- (d) A complete outline map of England and Wales, showing the chief railway lines, etc., and a series of enlarged sections of the same.
- (e) A series of boldly executed outline maps of the chief European countries and the most important British possessions.
- (f) Special maps illustrating the distribution of various productions, climatic phenomena, population, etc.

In the higher classes the children should be taught to use atlases, and encouraged to prepare sketch maps for themselves.

V. Apparatus for History Lessons.—The close connection which exists between history and geography suggests the use of similar aids in teaching these subjects. History cannot be properly understood without geography, which in its turn is more readily mastered when associated with some historical fact; hence the most useful aids available for history lessons will be :—

- (a) A map of the country or district referred to, showing the political features at the period during which the historical event took place, and its physical aspects so far as they may explain or illustrate the historical facts; all places mentioned in the lesson should be pointed out on the map, and map-drawing should be utilised as explanatory of the history lesson.
- (b) Sketch maps, plans, or clay models of battlefields; when models are used, strips of different coloured paper or cardboard will indicate the relative positions of contending armies, and such illustrations will be found attractive to the pupils and will leave a lasting impression on their minds.
- (c) Pictures of notable incidents and persons; or illustrations of the manners and customs, architecture, dress, etc., at various periods.
- (d) Old coins or weapons, etc., where obtainable.

In addition to these aids, historical ballads and patriotic poems will often serve to add interest to lessons and to render the main facts easier to remember. Genealogical and Chronological Tables may also be constructed on the blackboard, the most important points being shown prominently in coloured chalks: such tables, however, should only be sparingly used, and dates need not be learned until after the pupils know something of the events to which they refer.

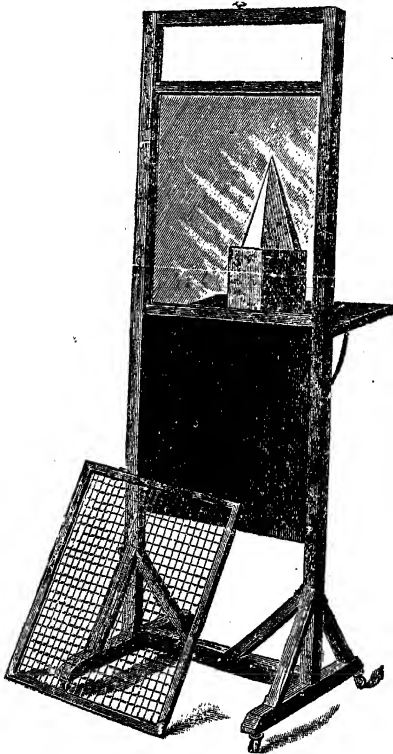
VI. Apparatus for Object and Science Lessons.—It is evident that the materials included under this heading must be suited to the course of lessons selected; and while many excellent and ingenious contrivances are obtainable from school furnishers, it will generally be found that apparatus constructed by the teacher or even by the pupils themselves is by far the cheapest and most serviceable. The following examples will serve to indicate what may be done in this direction, and many others will readily suggest themselves to an experienced teacher.

- (a) A large doll's house completely furnished, all the internal arrangements being shown by removing one of the sides; a farm-house and farm-yard in miniature; a model railway station with trains, etc., these and similar models will be found of never-failing interest in the infant school.
- (b) Pressed specimens of leaves and flowers, and enlarged crayon sketches of their various parts may be furnished by the pupils themselves.
- (c) Models of the bones of the hand, wrist, arm, foot, etc., may be carved out of bars of ordinary yellow soap. These have a most realistic appearance when mounted in position on a blackened sheet of cardboard by means of cotton threads, and will be found invaluable for lessons in physiology and hygiene.
- (d) Filtration of water may be shown by arranging alternate layers of charcoal, sand, and gravel in a box having one of its sides formed by a sheet of glass. In a somewhat similar manner, by placing inclined layers of chalk, sand, gravel, or clay alternately, the formation of springs may be well illustrated.
- (e) An electrical machine can be constructed with an ordinary wine bottle, and all the needful accessories easily supplied; little difficulty need be experienced in making a gold-leaf electroscope or a Leyden jar out of a pickle-bottle; and a serviceable dipping-needle can be readily devised by suitably preparing and mounting a strip of magnetised steel.
- (f) Sufficient chemical apparatus for preparing and demonstrating the properties of hydrogen, oxygen, nitrogen, and carbon dioxide will also be found a useful acquisition.
- (g) Specimens for illustrating object-lessons may often be collected by children, and will form the nucleus of a school museum.
- (h) A small aquarium can be readily constructed by means of a water-tight box with a glass front, and may be used for showing the various stages in the development of the common frog, etc.

VII. Apparatus for Drawing.—As in the case of writing, success in this subject can only be obtained by the use of good materials; the pencils, rulers, compasses, indiarubbers, and paper must be of suitable quality.

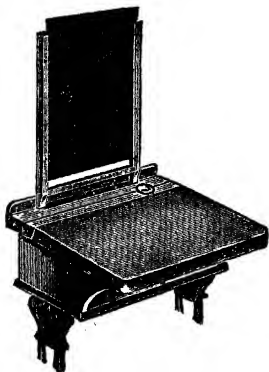
One of most useful appliances for teaching all kinds of drawing throughout the school is the Viaduct Drawing Demonstration Frame which is shown in the accompanying sketch.* This consists of a strong frame mounted on casters, and is provided with blackboards for freehand and ruler drawing, together with a framed pane of glass and a netted frame for teaching scale drawing. The blackboards are hinged for teaching solid geometry, but may be arranged vertically when desired.

When model drawing is taught to the higher classes it is advisable to provide the following geometric solids: a cube, cone, cylinder,



square pyramid, ring, square, triangular and hexagonal prisms, and two vases. These models should be made according to certain

standard sizes fixed by the Board of Education. A few common objects should also be provided.



For lessons in free-arm and ambidextrous drawing it is most convenient to have a blackboard extending along one side of the room; but where this is not available Lynam's Free-arm Drawing Frame, manufactured by the Educational Supply Association, will be found of special service. This is shown in the accompanying sketch.

School Museums.—Whenver the knowledge of objects plays an important part in teaching, tangible illustrations or models are necessary; hence for this purpose every school should possess one or more cabinets

containing a well-arranged collection of specimens.

The following practical suggestions may be found useful in forming such a collection:—

- (1) The choice of objects will mainly depend on the subjects of the curriculum and the district in which the school is situated; but any others which are likely to cultivate observation and arouse interest in the children may be included.
- (2) The objects need not be expensive; many of them may be collected or made by the children themselves, or by different members of the staff according to their special tastes and inclinations; others may be obtained free or at nominal cost on application to various manufacturing firms, railway and shipping companies, etc.
- (3) The cases and drawers may be made by the pupils during woodwork lessons; the doors should have glass panels, and be kept locked except on special occasions. For small objects the most convenient cabinets are shallow glazed boxes, which allow the specimens to be inspected without removal.
- (4) Every object should be properly classified and labelled; under the teacher's guidance this may be done by the scholars, and will be found a valuable exercise in itself.
- (5) Care should be taken to keep the contents of the museum free from dust, and arranged so as to admit of ready removal and replacement.
- (6) Mere curiosities are most conveniently kept entirely apart from those objects which have a distinctly practical value.

The collection should be as varied as possible, and may be classified under such heads as the following:—

(a) **Animal Kingdom.**—Specimens of local birds and their eggs, fishes, insects, etc.; enlarged models or drawings of some of the most minute structures, such as feet, beaks, teeth, etc., showing the adaptation of particular animals to their habits and surroundings; samples of animal products, such as wool, leather, horn, silk, in various stages of manufacture.

(b) **Vegetable Kingdom.**—A series of local wild flowers and plants, properly pressed, mounted, and named; vegetable productions in the raw state and in progressive stages of manufacture, such as cotton, flax, hemp, sugar, cocoa, mustard, cereals, cork; samples of various kinds of timber, etc.

(c) **Mineral Kingdom.**—Typical specimens of the commoner rocks found in the neighbourhood, together with samples of different kinds of house coal, peat, glass, salt, and typical shells and pebbles from the sea-shore; specimens of common metals and their ores, etc.

(d) **Manufactures.**—Some of these will be comprised in the preceding and following classes. Where possible, local industries should be fully illustrated; the materials should be arranged in order according to the stages of preparation from the raw product to the finished article, and sketches or models of the machines and tools employed may be included. Samples of the more important imports and exports of our own and other countries should also be obtained when facilities are available.

(e) **Common Objects.**—The preparation of such things as pins, needles, pencils, pens, paper, soap, candles, cutlery, pottery, etc., may advantageously be illustrated in stages. Ornamental cases or cards containing all that is necessary for school use have been prepared by various manufacturing firms, and may be obtained by teachers either gratuitously or for a small charge. Models of a common pump, a steam-engine, a steamship, a sailing vessel, a mariner's compass, a gas-meter, a ventilator, a volcano, etc., should also be shown if possible. Specimens of woodwork illustrating different kinds of joints may often be prepared by the pupils themselves, and much of the apparatus needful for illustrating object and science lessons may be home-made.

(f) **Antiquities.**—Historical prints and photographs of historic places, medals, coins, old weapons, models of pillory and stocks, and

possibly a few old books and parchments may sometimes be obtained and utilised for history lessons.

The subjects might be extended almost indefinitely, and an enthusiastic teacher who enlists the aid of his pupils will have very little difficulty in forming a large and useful collection. Care must be taken, however, that the museum does not degenerate into a jumbled mass of odds and ends; re-arrangement for different purposes will often be necessary, and it will sometimes be advisable to replace one set of objects by a fresh group, so that the museum may continually serve to provide materials sufficiently numerous for extended observation, and sufficiently varied to evoke interest.

Value of School Museums.—In addition to supplying illustrations for various lessons, the museum possesses several other important advantages.

- (1) The encouragement given to children to collect natural objects may serve to develop a love of nature, as well as to arouse curiosity and to deepen interest in school work.
- (2) Observation is stimulated, and a love of knowledge is likely to be engendered.
- (3) Useful information is provided for the pupils in an interesting way, and with the least expenditure of time and effort.
- (4) Additional opportunities are afforded for the cultivation of the senses, while the manufacture of models and apparatus by the scholars gives considerable encouragement to hand and eye training.
- (5) The vocabulary is increased, and composition thereby improved, because the things observed and described demand the use of exact language.

Schoolroom Decoration.—The desirability of making the school as attractive as possible has already been mentioned. The following are some of the methods which may be adopted for this purpose, though they are by no means exhaustive.

1. **Pictures.**—Nothing tends to brighten the appearance of a schoolroom so much as a good assortment of suitable and well-arranged pictures; and at the same time these are often of special service as teaching aids, because when it is impossible to make use of an object, or to obtain a specimen or model of it, the teacher is compelled to take advantage of a pictorial representation. In history and geography lessons, also, the judicious use of pictures is almost indispensable to successful teaching.

In selecting pictures for school use the most important features necessary are *clearness, boldness, and accuracy* of representation.

Those points which are most important for the children to observe should be shown prominently, and unnecessary details as far as possible omitted. Pictures illustrative of wild animals should also contain some other object familiar to the children, for purposes of comparison with regard to size and appearance.

The following are the subjects most suitable for pictorial representation in upper departments:—

- (a) Foreign places and peoples.
- (b) Notable historical events.
- (c) Typical animal forms—birds, beasts, and fishes.
- (d) Trees, flowers, and fruits.
- (e) Trades and manufacturing processes.
- (f) Ships and boats of various kinds.

Where obtainable, a few engravings of works by famous artists, and striking pictures selected from high-class periodicals may be added.

Similar subjects may be chosen for infant schools, though here they should be considerably simpler than in the case of older scholars, and include familiar scenes of every-day life, domestic animals, etc.

Besides the pictures hung on the school walls, a large portfolio of illustrations for various lessons should form a part of the equipment of every school; and the scholars will eagerly assist the teacher in collecting these from the numerous illustrated periodicals now in circulation.

2. Diagrams.—To some extent the choice of these will depend on the school curriculum. The most serviceable will be those constructed by the teacher himself, and containing only such features as are essential for the lesson; the attempt to crowd several illustrations on the same sheet is a common fault of many published diagrams, as it has a tendency to distract the attention of the children from the work in hand—thereby leaving only vague impressions—and generally necessitates smaller representations of each object than would otherwise be the case.

The chief objects which lend themselves most readily to diagrammatic representation are physical geography, animal physiology, botany, mechanics, and geology; though with a little ingenuity it is possible to construct diagrams which will be helpful in teaching almost every subject of the curriculum. In the higher classes one of the best diagrams for cultivating observation and quickening intelligence is a large weekly or monthly Weather Chart, constructed by the children themselves, and

marked daily by them with reference to the thermometer, barometer, direction of wind, etc.: this should occupy a prominent and readily accessible position in the school.

Framed specimens of pupils' work, such as excellent handwriting and drawing, may also be included under this heading, and will often be found of service for arousing emulation as well as for mere ornamentation.

3. Honours' Board.—This should occupy the most prominent position which can be selected for it in the school. Instead of being limited to the names of pupils who have obtained various distinctions in examinations, the honours' list may often advantageously include those who have been distinguished for regularity of attendance during successive years.

4. Plants and Flowers.—These, when carefully looked after, will be found to add brightness to the internal appearance of any school, and should constitute an indispensable part of the decoration for window-sills, platforms, and teachers' desks. They are also of much use for object and botanical lessons.

Care of School Furniture.—The general condition of school furniture and apparatus depends almost exclusively on the regard which the children are taught to have for them, and thus serves as a fair indication of the extent to which the school is utilised for the formation of right habits of conduct and consideration for the property of others. If the head teacher takes an active and personal interest in the neatness and cleanliness of everything pertaining to school work, all those who are under him, from the children upwards, will learn to do the same, and thus as far as possible the school may be made a pattern of order. For achieving this end the following simple rules may be suggested:—

- (1) An example of the strictest care in the use and disposal of all school materials must be shown by every teacher.
- (2) Proper precautions must be taken to prevent disorderly and rough usage, either of school premises or furniture, both before and after as well as during school hours.
- (3) Careful supervision of the cloak-room must be exercised during the assembly and dismissal of the scholars.
- (4) All movements into and out of the desks should take place according to signals.
- (5) Disfiguring desks, seats, or books in any way must be absolutely forbidden, and this rule may be advantageously extended to every part of the school premises, both inside and out.
- (6) All damages should be repaired as soon as possible.

EXAMINATION QUESTIONS.

1. What is meant by school *furniture* and *apparatus*? By what considerations would you be guided in the choice of these, and how would you endeavour to secure proper care with regard to their use?

2. Give a list of the maps, pictures, diagrams, and apparatus which you think ought to be provided in a well-furnished schoolroom.

3. Describe the proper height and size of desks (*a*) for an infant school, and (*b*) for a school of older children. Say how desks ought to be placed in reference to the light.

4. If your advice were asked by managers as to the fitting and furnishing of an Infant School or classroom for younger children, what suggestions would you make about the fixtures, decoration, books, and apparatus which such a room should contain?

5. Point out some of the principal uses of the blackboard for teaching arithmetic, geography, drawing, and object lessons.

6. State the requirements for a good reading-book. What are the most common faults in early books for children?

7. Discuss the relative advantages and disadvantages of reading-books consisting of short extracts and continuous narratives respectively.

8. Enumerate Froebel's Gifts and show the progressive nature of their lessons.

9. How far is the use of pictures desirable in an Infant School? If you were asked by the managers, what sort of pictures would you recommend them to purchase? Give an example of the use you would make of a picture in giving a simple lesson on a *Farm Yard* or on a *Railway*.

10. Say what sort of pictorial or other visible illustrations you would use in teaching the elements of arithmetic to very young children, and show what use you would make of such illustrations.

11. Show what is the proper use of a blackboard as an aid to recapitulation. Give a specimen of the sketch which should appear on the board at the end of an object lesson.

12. Describe any apparatus that you have employed, or seen in use, for enabling learners to verify by sight the addition table, cubic measure, and subtraction of fractions.

13. Describe some of the best mechanical aids and illustrations you have seen for teaching young children the forms and proportions of letters, and state the value of each.

14. Discuss the relative advantages of copies on blackboard, printed copy-slips, and copy books with engraved headlines, in teaching writing.

15. In writing in copy books there is a great tendency to repeat the same mistake down a whole page. What is the best method of correcting this?

16. Describe the best way of ruling slates or paper so as to help young scholars to understand the forms and proportions of letters.

17. What simple apparatus would you use in giving a first lesson on Fractions?

18. State carefully the precise value of pictures and pictorial illustrations in class-teaching, and apply your description to a lesson on the geography of France. What dangers have to be guarded against in the above use of pictures?

19. What apparatus is needed in teaching the following subjects? (a) English history, (b) physical geography, (c) elementary mechanics, (d) elementary physiology.

20. Describe any simple apparatus which may be used for the purpose of illustrating a lesson on day and night, eclipses, and the seasons.

21. If you were called upon as head teacher to select sets of reading books (a) for lower classes, and (b) for the highest class, by what considerations would you be guided in your selection, and what conditions ought such books to fulfil?

22. What sort of decoration is most appropriate in a schoolroom, and most likely to make it bright and attractive to the scholars?

23. State the most important characteristics of (a) maps, and (b) pictures for school use.

24. If your school is supplied with (a) a globe, (b) a sundial, (c) a mariner's compass, (d) a thermometer, what use would you make of them?

25. To what practical purposes would you put a School Museum: what kind of specimens should you include in it; and how would you classify them?

26. State the sort of apparatus and visible illustration which are likely to prove most helpful to a teacher in giving lessons in geography (a) to a junior class, (b) to elder scholars.

27. Give briefly in each case some natural law which would require illustration by experiment in lessons on the microscope, the thermometer, the steelyard, balloons, and ships; and state the experiment you would employ for illustration.

28. Describe any special apparatus you have seen for the teaching of Drawing?

29. Discuss the relative suitability of the various forms of blackboard, and of the different materials of which blackboards or their substitutes are made.

30. What experiments or material illustrations would you need in giving lessons on the following subjects:—(a) Oceanic Currents; (b) the Metric System; (c) King Alfred; (d) Square Measure?

CHAPTER IX.

MISCELLANEOUS DETAILS IN SCHOOL ORGANISATION.

I. Savings Banks.—The introduction of free education a few years ago gave a widespread impetus to the establishment of Penny Banks in schools, as in very many cases parents were induced to allow their children to utilise the pence previously spent on school-fees for the purpose of forming the nucleus of a Savings Bank account.

The chief object of the School Savings Bank is to encourage the *early* saving of *small* sums of money, with a view to induce children to continue habits of thrift after leaving school. To teach a child how to economise slender resources, how to resist temptation to needless expense, and how to make reasonable provision for the future, is an important part of its education. Such knowledge cannot be acquired too early in life, and much may be done in a school to render its acquisition easy to children and to show them the advantages of economy and foresight. Simple lessons, intelligible and interesting to the children, may be given on money, on the conditions which affect the rate of wages, on the relation of skill, prudence, and knowledge to industrial success, and on the right methods of spending and saving. Economy is, however, a habit, and is to be acquired by practising it, rather than by listening to demonstrations of its importance. The child who is helped to deny himself some trifling personal gratification, who is encouraged to save by degrees a few shillings, and who finds this sum available for the purchase of books or clothes, or for helping his parents at a time of family misfortune, has received a practical lesson in the advantages of economy and foresight which may make a lasting impression upon him.

The value of such a lesson will not be confined to its influence on the scholar's own character and welfare, but it will also exercise a reflex influence on the members of the household to which he belongs. It provides them, too, with a practical lesson of lasting value. It will tend to encourage the parents to start savings bank accounts themselves, or to assist those of their children.

Proper facilities for the banking of school pence without unduly burdening the teacher with clerical work are now provided by the Post Office authorities, specimen rules, together with deposit books or cards, cash books, and ledgers being supplied entirely free of charge, and therefore the Penny Bank should form one of the most useful features in the organisation of every elementary school.

SPECIMEN FORMS OF ACCOUNTS FOR SCHOOL PENNY BANKS.

No. 1

CHILD'S BOOK.

DEPOSITOR'S NAME, HENRY BROWN.

Date of Deposit or Withdrawal	Amount of Deposit				Amount of Withdrawal				Signature
	£	s.	d.		£	s.	d.		
January 16	—	1	3						E. Hall

CASH BOOK.

ACCOUNT of Transaction on Monday, the 16th day of January, 1905.

No. of Book	Amount Deposited			Name of Depositor			Amount Withdrawn		
	£	s.	d.				£	s.	d.
1		1	3	Henry Brown	...	...	
2	—	—	—	William Smith	...	...	—	1	9

LEDGER.

[illegible]

If adopted in the ordinary form, three books will be necessary:— (1) the Child's or Depositor's book, (2) the Cash book, and (3) the Ledger. Any number of the first of these can be obtained free of cost, and a separate copy must be provided for each depositor; this contains spaces for dated entries of deposits and withdrawals, and forms a sort of receipt or pass-book, since it gives to the depositor and his parents written evidence that the money has been received. The Cash book and Ledger are intended for the teacher's use, and when properly kept, one serves as a check against the other. The Cash book will show how much money is received altogether, and will agree with the amount deposited in the bank, less any small sums withdrawn after a previous week's notice. The Ledger will show the amount invested or withdrawn by each child weekly, and the interest (if any) which is allowable. The total here will always agree with the bank book. Suitably ruled copies of Cash book and Ledger containing provision for the whole of the School Savings Bank accounts are now supplied by the General Post Office free of charge. Specimens of each book with illustrations of the mode of making entries are given on the opposite page.

The head teacher should make such arrangements for the periodical collection and entry of deposits as will be least likely to interfere with the ordinary working of the school. It is inadmissible to collect them during school hours unless provision is made for doing so on the approved time-table. In many schools it is found most convenient to take the majority of the deposits at noon on Mondays, though for the sake of utilising the bank to the best advantage children should be encouraged to bring any small sum when they can. The ledger need not be made up till the end of each week. Except in very large schools, where each class teacher keeps a separate ledger, it is generally advisable for the head teacher to receive all deposits and to sign the bank books; the posting in the cash book and ledger can be entrusted to other members of the staff.

Stamp Deposit System.—In cases where teachers find the system just described unsuited to their requirements on account of the time involved in book-keeping (which in large schools must necessarily be considerable unless each teacher keeps a special ledger for his own class), an alternative plan, sometimes called the *Slip Method* or *Stamp Deposit System*, may be adopted. For convenience in working, printed forms, containing spaces for twelve penny stamps,

will be supplied free of cost by the Post Office, together with envelopes for the safe keeping of each form. Larger forms containing spaces for forty-eight stamps may also be obtained, and if desired the name of the school will be printed free of charge on each. A credit stock of stamps can be obtained by the head teacher on furnishing a letter of indemnity signed by two householders on a form provided for this purpose by the Savings Bank Department.

The printed slips are issued to the children, each slip bearing the name of the depositor and school. On the day appointed for the receipt of the pence saved, the teacher exchanges the money for stamps, which he sees properly affixed to the forms. These are afterwards taken home by the children and thus serve as evidence to their parents that the money has been received; the forms may then be either kept by the parents or returned to the school until the next day fixed for receiving deposits. At certain definite intervals (monthly or quarterly according to arrangement) a post office clerk attends at the school and receives from the master the money deposited, issuing bank books when necessary in return for the filled-up slips. After a bank book has been issued to a child he still continues to save separate pence by means of a stamp deposit form, and each complete shilling is periodically entered in his book by the post office clerk. By the adoption of this plan the teacher's work in connection with the bank is reduced to a minimum.

When any child's deposits amount to a pound they may be transferred from the school bank to that of the post office, and in no case must the amount standing to the credit of an individual depositor in a penny bank exceed five pounds; but in future the child can, if he wishes, deal directly with the Post Office Savings Bank instead of the penny bank at school. Deposits can be made in an account opened on behalf of a penny bank to the extent of £100 in one year, and £300 altogether.

Interest.—As soon as the total deposits of the school bank amount to a pound, interest will be allowed by the post office at the rate of $2\frac{1}{2}$ per cent.; if thought advisable, this may at the end of each year be apportioned among the depositors, or may be slightly increased by local benevolence in order to afford further encouragement to the children. In some schools interest is not allowed on individual deposits until they reach a certain amount, the small surplus of interest thus obtained being utilised for the purpose of meeting incidental expenses, so that the bank need not be worked at any personal loss to the teacher.

Advantages of a School Bank:—

- (1) It gives the children practical lessons in thrift, by encouraging them to save small sums at an early age.
- (2) It introduces them to the advantages of the Post Office Savings Bank.
- (3) It enables them to save money before they become wage-earners, and thus forms a nucleus for deposits after school-days are over.
- (4) It generally serves as an additional bond of friendship and sympathy between the scholars and their teachers.
- (5) It tends to secure parental interest and co-operation in school work.
- (6) In poor districts it sometimes constitutes the only means of saving, especially in the case of parents who are unable to understand the routine of an ordinary bank or post office.

Supplementary means for the Encouragement of Thrift.—In addition to the practical lessons in thrift afforded by school savings banks, the following supplementary means for its encouragement may be suggested:—

- (1) The teacher must exercise strict supervision over all school materials and apparatus, and see that they are used with proper care.
- (2) Lessons on Domestic Economy should be given to the girls.
- (3) Clothing Clubs may sometimes be organised in connection with the school.
- (4) The children should be encouraged to be neat in dress, and hence to be careful with regard to their clothing.
- (5) Special lessons on the value of money, and on the advantages of Building, Co-operative, and Friendly Societies should occasionally be given to the pupils.

II. School Libraries.—It is not sufficient to teach children *how* to read; they must also be taught *what* to read, as far as lies within the teacher's power; hence a collection of suitable books for general reading should form part of the equipment of every school, for the following reasons:—

- (1) It assists school work by widening the vocabulary, quickening intelligence, exercising imagination, and extending general knowledge.
- (2) It tends to give children pleasant associations with the thought of books, and thereby encourages a love of reading for its own sake.
- (3) Suitable books are not always available in the homes of the children and thus the school library will considerably lessen their likelihood of reading unsuitable or injurious literature.
- (4) When carefully selected the library will help to inculcate a taste for pure and healthy literature which will last for a lifetime.

Selection of Books.—Great care must be exercised in the choice of the books; they must be such as children will eagerly desire to read, and sufficient variety must be provided to suit different ages, sexes, and temperaments. Keeping in view the reasons just laid down, it is evident that so far as an elementary school is concerned the contents of the library may be classified under the following heads:—

- (a) Attractively illustrated books for the younger pupils, fairy tales, fables, etc.
- (b) Stories of travel and adventure.
- (c) Suitable works of fiction.
- (d) Historical tales and biographies of famous men and women.
- (e) Popular science and natural history.

The following are the titles of twenty-five books which may be included, and all of which can be obtained strongly bound at a low price: *Lamb's Tales from Shakespeare*; *Yonge's Book of Golden Deeds*; *Lewis Carroll's Alice in Wonderland*; *Andersen's Fairy Tales*; *Kingsley's Westward Ho!* *Water Babies*, and *Madam How and Lady Why*; *Buckland's Stories of Animal Life*; *Henty's Young Carthaginian*; *Kipling's Jungle Book*; *Ballantyne's Dog Crusoe*, and *The Iron Horse*; *Jules Verne's Boy Captain*, *Twenty Thousand Leagues under the Sea*, and *Five Weeks in a Balloon*; *Stockton's Tales from American History*; *Fennimore Cooper's Pathfinder*; *Manville Fenn's Blue Jackets*; *Douglas's Brave Hearts and True*; *Mrs. Stowe's Uncle Tom's Cabin*; *Scott's Ivanhoe*, and *Talisman*; *Dickens' Old Curiosity Shop*; *Stanley's How I found Livingstone*; *Thayer's From Log Cabin to White House*.

A few bound volumes of healthy juvenile literature such as *The Scholar's Own*, *Chums*, the *Boy's Own Paper*, and the *Girl's Own Paper*, will also be found useful acquisitions.

The above selection is merely intended to suggest the variety of style and subject which should be included; the student may readily make out equally serviceable lists for himself.

Management of the Library.—A certain time in each week (e.g., four o'clock on Friday afternoon) should be fixed for the changing and distribution of books, and the duties of librarian may be advantageously performed by a senior scholar or pupil teacher. A few simple rules with regard to the issue and care of the books should be drawn up and strictly adhered to; the following may be quoted as examples of what is necessary:—

LIBRARY RULES.

- (1) The library is open for the exchange of books on Friday afternoons from 4 to 4.30.
- (2) Books may be borrowed only by scholars who have attended regularly during the week.
- (3) No book may be kept for a longer period than two weeks.
- (4) Books lost or damaged must be replaced at the borrower's expense.

It is generally advisable to allow only one opportunity for changing books in each week; when facilities for doing this are more frequent there is a liability on the part of some children to read the books carelessly, so that much of the benefit may be lost.

The following general suggestions for the management and use of school libraries were issued in the Instructions to H.M. Inspectors some years ago:—

- (1) The distribution of the books should not be a haphazard arrangement. The most effective system is a periodic circulation of the library, in suitable lots, amongst the class teachers, each of whom, being in closer contact with the children than any head-master can be, will see that suitable books are borrowed, and by personal influence can encourage very greatly any nascent desire for reading on the part of individual children.
- (2) Girls should have the same facilities as boys. In schools of any considerable size, the girls' library should be in the girls' school. Even when the number of books is small, it is best to divide them into two lots, which should be changed from time to time, for use in separate libraries.
- (3) The use of public libraries, which often contain a special children's library, may be wisely encouraged amongst school children before they leave school. Teachers may make themselves acquainted with the nearest public library, and interest the children in it by explaining its uses and advantages, and even by taking them round it at convenient times.
- (4) The circulation of libraries from school to school has often been found most beneficial in varying the supply of books, and extending their general usefulness. An Education Authority in a large town has special facilities for working this system, but in country districts similar arrangements may easily be made.

- (5) Some such organised system as that of the National Home Reading Union of Surrey House, Victoria Embankment, London, may often be made a valuable instrument in the teacher's hands in the higher classes of a school, and tend to a continuation of the habit of reading beyond school age, as well as to the more intelligent appreciation of what is read.

Advantages of a School Library.—The important influence of the library in developing intelligence, fostering a love of reading, and assisting school work generally, has already been pointed out. In addition to these the following *subsidiary advantages* may be mentioned :—

- (1) If the use of the library is restricted to children who have not missed a single attendance during the week, a strong incentive to regularity is provided.
- (2) In carefully using the books the scholars are exercised in habits of cleanliness, order, and due regard for the property of others.
- (3) The necessity of returning books at a fixed time gives training in punctuality.
- (4) The office of librarian may be held by senior scholars in turn as a reward for good work and conduct.
- (5) Where a suitable classroom is available for the purpose, a Scholars' Reading Room may be conducted in connection with the library, as pointed out in the previous chapter.

Teachers' Reference Library.—A collection of reliable manuals dealing with the various subjects of the school curriculum is an invaluable aid to intelligent and successful teaching, and should form part of the equipment of every school. The books need be neither very expensive nor very numerous; but in addition to textbooks and works on methods of teaching the school subjects, some or all of the following might be profitably included :—A good Etymological English Dictionary, A Dictionary of Quotations, a Gazetteer of the World, a brief Biographical Dictionary, and a handy Encyclopedia; to these might with great advantage be added, year by year, the bound volumes of such valuable periodicals as the *Practical Teacher*, the *Teachers' Aid*, and others. For providing variety in methods of teaching, furnishing examples, clearing up doubtful points, and in a general way for keeping teachers well-informed in all details belonging to their profession, the reference library should be considered an indispensable factor in school work.

III. Home Lessons.—Considerable diversity of opinion exists among educational authorities with respect to the advisability of home lessons for children in elementary schools. The arguments on both sides of the question may be briefly summarised as follows:

Advantages:—

- (1) They make a considerable addition to the time spent in learning at school.
- (2) They serve to recapitulate lessons taught during the day.
- (3) If honestly done they afford the teacher a valuable means of testing the real quality of the work done by individual pupils.
- (4) They help to cultivate habits of industry, self-culture, and self-reliance.
- (5) They form a link between school and home-life by affording parents an opportunity of watching the child's progress; hence they may help to secure the co-operation and interest of intelligent parents.
- (6) They allow the teacher more time for undertaking higher work in school than would otherwise be possible.

Disadvantages:—

- (1) For healthy development of mind and body, change of occupation is necessary; hence the child's leisure should be spent in physical exercise rather than brain work.
- (2) Some authorities state that home lessons conduce to over-pressure. If a child's brain has been actively employed for five hours per day in school, it will probably have reached the "fatigue point," beyond which further mental exertion may be positively injurious.
- (3) Through want of proper examination by the teacher they may give rise to careless and slovenly habits of work, and even to dishonesty; in such cases the home lessons do more harm than good.
- (4) They sometimes cause friction between the school and the home.
- (5) The character of many homes, and the amount of labour done out of school hours by many children belonging to the poorer classes afford little or no opportunity for home lessons.
- (6) Public opinion is in some measure opposed to them; some authorities state that the school day is already too long for children, and should not therefore be needlessly extended by the imposition of additional tasks.

The circumstances and general intelligence of the parents, however, are the most important factors in deciding the question as to whether home-work should be required. If they are themselves educated and fully conscious of the value of education for their children, they will not only support the teacher in prescribing such work but will see that it is properly done; if, on the other hand, they are careless or ignorant, they will fail to see why they should

take the trouble of enforcing such work on the part of their children, whom they consider should learn at school all that is necessary to be learned. With wise home training and parental interest in school work, home lessons should be reasonably expected, at least in the higher classes.

Amount and Character of Home Work.—No home lesson should require a longer time than 30 to 45 minutes. Even if the full amount has not been completed, a note from the parent certifying that 45 minutes' work has been honestly done should satisfy the teacher.

The most suitable subjects for home work are those which require a reproduction of something taught during the day, such as facts in history, geography, elementary science, parsing and analysis, typical examples of rules in arithmetic, composition, etc. As a *general rule* the home lesson should not involve the preparation of new work which will be taught the following day; though subjects like spelling (in preparation for the next dictation lesson), a few important dates in history, or a few lines of recitation may sometimes usefully form part of such preparation. Care should be taken that as far as possible the subjects chosen are attractive to the children, so as to give them a liking for home studies which will be carried on when school days are over. An opinion far too common with children (and in very many cases with their parents also) is that when they leave school they have *finished* their education, whereas they have in truth only just *commenced* it; but if all studies are to cease and books to be closed when children leave school at fourteen or fifteen years of age, the value of previous school work is to a great extent lost. Hence home lessons should afford encouragement to self-effort in the future.

Another important consideration in the choice of subjects for home work is the limited amount of time which can be spared by the teacher for marking. Hence in order to secure the full benefits conferred on both scholar and teacher the work must be :—

- (a) Moderate in amount.
- (b) Well within the scholars' capacity, so as not to require undue assistance at home.
- (c) Easy to examine and always examined;—unless this is the case its value is almost entirely lost.
- (d) Such as can be well done by every child; work inferior in quality to that done at school must never be tolerated, and nothing but illness or a note from the parents must be accepted as satisfactory reason for its neglect.

- (e) Difficult to copy;—unless this is the case the home work may give rise to widespread dishonesty. Where work has to be learnt as well as written the temptation to copy is minimised; but when arithmetic and algebra are prescribed the pupils should be provided with separate sets of questions on cards.

Arrangements for fixing and examining the home lessons should be made according to a definite monthly or quarterly scheme, and all work which is not purely mechanical (*e.g.*, composition, grammar, etc.), is best corrected by the responsible class teacher. Such subjects as spelling, arithmetic, geography, and history may often be readily tested during the same lessons in school. If the limits of the staff permit, arithmetic, composition, or grammar may be sometimes marked by junior teachers during collective lessons. A prize scheme based jointly on the marks obtained for excellence in home work, regularity in attendance, and general progress in school, has often been successfully employed as an incentive to securing the interest of parents and scholars in school work.

IV. Parental Interest and Co-operation.—Home influence is one of the strongest forces in the formation of character; where that influence is good, the teacher's work is materially lightened as well as supplemented; where it is indifferent or evil, his duties are rendered much more difficult, because he has to uproot the evil before he can implant that which is good.

The parent can assist the teacher in the following ways:—

- (1) By training his child in habits of truthfulness, obedience, cleanliness, and order.
- (2) By causing the child to attend school regularly and punctually.
- (3) By supporting the teacher's authority, and showing a kindly interest in, and sympathy with his efforts.
- (4) By exercising reasonable supervision over home work when any is required to be done.

As the teacher's authority over the child is generally more limited than that of the parent, much importance should be attached to the adoption of various plans for securing parental goodwill and co-operation whenever possible. The manner in which the teacher is spoken of by the parents at home has an important bearing on the child's conduct in school; both are naturally expected to be working for the pupil's benefit; but when he knows them to be in opposition the influence of each is considerably weakened. Hence for the sake of the moral and intellectual welfare of the child, the active assistance and sympathies of each should be freely accorded to the other.

The following are a few of the means which may be suggested for the purpose of enlisting parental interest in school work, though it is not to be expected that all are available in every school. Various methods must be employed to meet different conditions and circumstances, and the teacher will generally be the best judge as to the plans which may be most usefully adopted.

1. *Exhibition of Work*.—Children may occasionally be allowed to take home for their parents' inspection specimens of good work done in school.

2. *Reports*.—The issue of periodical reports or records of progress containing class-lists in order of merit, or showing the number of marks obtained by the pupils in each subject, number of times late and absent, etc., together with a general report on conduct, will often be found helpful in arousing the interest of parents. These records, however, should not be so detailed as to demand an undue amount of clerical work on the part of the teacher; a useful specimen of Progress Record is given at the end of the present chapter.

3. *Certificates*.—Weekly or monthly tickets, or quarterly certificates for regular and punctual attendance or specially creditable work are often found very effective.

4. *School Magazine*.—Class-lists, records of attendance and other details similar to those already mentioned may be printed in the School Magazine; copies of essays and other work by the pupils may also be advantageously inserted.

5. *Home work*.—Children in the upper classes should be encouraged to read to their parents, and where possible to work simple experiments, etc., at home; those in the lower classes may be induced to tell their parents as much as they can about the object lessons. Where home work in its more restricted sense is given, the parents are enabled to watch the pupil's progress more closely.

6. *Entertainments*.—School concerts and public prize distributions are generally instrumental in attracting parental interest.

7. *Open Sessions*.—In some schools it has been found distinctly helpful to have an "open session" during one half-day per quarter, when the parents are invited to visit the school and see the classes in working order. An exhibition of specially good work of all kinds bearing the names of the workers may profitably be provided at the same time. If care is taken that the ordinary routine of the school

is not seriously interfered with, an excellent method of uniting the influences of school and home is here provided.

8. *Correspondence*.—Under special circumstances much good may be done by a judicious note to parents; though obviously this plan cannot be utilised to any great extent.

9. *Assistance*.—The encouragement of thrift by the establishment of penny banks; the influence used by the teacher with neighbouring employers for the purpose of securing suitable work for boys leaving school; the provision in poor districts of free dinners and cast-off clothing, are all proofs to parents of the practical interest in the welfare of the children taken by teachers.

10. *Visits*.—Occasional visits by the teacher to the homes of the scholars, or visits received at school from their parents, will generally improve mutual acquaintance; though these unfortunately are only possible to a very limited extent.

11. *Local Press*.—Where possible the aid of the local press should be enlisted for reporting the successes of present and former pupils, and other details which serve to bring the work of the school into public notice.

12. *Local Residence of Teacher*.—When the teacher resides in the neighbourhood of the school and takes an active part in local affairs he is in a favourable position for becoming better known and appreciated by parents.

V. *School Journeys*.—The Code now permits visits to museums, art galleries, and other places of educational value or historical interest to be counted as part of the minimum time constituting an attendance, provided that the whole time spent at such places is not less than an hour and a half on each occasion, and that not more than twenty such attendances are claimed for any one scholar during the same school year. In all cases it is advisable to submit the arrangements beforehand to the Inspector; but his approval cannot be obtained unless it is made clear that the object of the expedition is *educational* and not *merely* recreative.

The subjects of the curriculum which lend themselves most readily to this form of instruction are nature knowledge, geography, and history, and the specific purpose of the excursions will naturally differ to some extent according to the subject which they are intended to illustrate; but while no precise rules for the arrange-

ment of school journeys can be laid down, each locality having its own peculiar fitness or unfitness, it is obvious that a few broad general principles may be formulated which are capable of application irrespective of local circumstances. In all cases the main object in view is to train the pupils in habits of observation and reflection, and by so doing to enlarge their capacity for, and deepen their interest in the subject dealt with. To attain these ends the teacher must draw up a scheme of the chief points to which he proposes to direct attention, the manner in which each of them should be treated, and the illustrations which will be serviceable in explaining them; he must also be prepared to take advantage of any incident which may occur during the course of the walk, and make it subservient to his main purpose of education.

Before undertaking the excursion, the teacher should give to his class an outline of the kinds of things to be looked for and noted, thus limiting the field of observation to the requirements of the lesson; in the earliest walks only the very simplest matters should be referred to, such as lie open to the most cursory observation and can be appreciated by even the least advanced pupils; but as further progress is made, a wider choice of subjects will be available. The great point, however, is to arouse attention, awaken curiosity, and quicken observation in the scholars; and the more simply and naturally this can be done, the more effective will be the teaching.

Having thus prepared the minds of the children for looking intelligently at what they are to see, the teacher may require them during their walk to point out examples and illustrations of what he has told them; or where they are unable to do so he may indicate them himself, amplifying his previous teaching by that fuller detail which is so much more easily grasped and understood when the actual objects are at hand.

The nature of the excursion or visit will depend to some extent on the locality in which the school is situated. As a rule, museums and picture galleries will only be available for schools in large towns. They may often be utilised for the purpose of illustrating geography, history, elementary science, or drawing; a museum of natural history or a zoological collection, for example, will afford numerous illustrations for object lessons, elementary science, or the distribution of plants and animals; advantage should be taken of a local collection of antiquities or an art gallery when teaching such subjects as history, geography, and drawing; various facts of historical interest connected with the district should also be known,

especially if there is any building or other memorial of past events which can be pointed out or visited; and similarly the staple industries of the locality may be dealt with.

In country districts exceptional opportunities are afforded for practical instruction in physical geography, geology, and the elements of nature knowledge. The various undulations and inequalities of the land-surface, its ridges and hollows, hills and valleys, runnels, brooks, and ponds, all supply types of the configuration of the general surface of the globe. The course of a stream in a hilly district, for example, may be made the subject of many interesting lessons. The children may be led to notice how a bed of hard rock underlaid by softer rock will often form a waterfall; other points for observation are the gradual cutting back of the waterfall; the formation of rapids, eddies, and deep pools; the pebbles, gravel, sand, and mud in the bed of the stream; the sorting out and arrangement of the materials in a shoal; and the circumstances which determine the course of the stream. Then again, in agricultural districts, the influence of human agency upon the landscape can be readily seen and understood, while additional subjects for observation will be afforded by local trees and wild flowers, birds, and insects. The position of the sun and direction of winds at different periods should be noted; the girth of trees may be measured, and the diameter calculated; the birds and their song can be identified; the time to walk a certain distance should be estimated; and plans of the neighbourhood may afterwards be drawn showing various important features, with the dimensions marked.

One of the great advantages of excursions into the country arises from the fact that it is scarcely possible to follow the same route twice under exactly the same conditions. Each season gives a different appearance to the landscape, the weather varies, and the positions of light and shadow change from day to day; such transformations furnish ample material for observation and comparison, for illustrating the relations of cause and effect, and for developing habits of careful reasoning in every stage of school life.

The age at which pupils may profitably take part in school excursions is best determined by the circumstances of the school and the number of the staff. In country infant schools properly supervised rambles may occasionally be arranged for the highest classes; in upper departments, either in the town or country, visits to places of interest may be adapted to the requirements of any class, but the numbers should never be so large that they cannot be

kept well under control, and it is generally advisable for more than one teacher to be in charge of the children. In visits to museums and art galleries it will be found that from twelve to twenty scholars are quite sufficient to form a group for teaching purposes; and the time of the visit should be arranged so as to interfere as little as possible with the convenience of the general public.

The best test of the value of a school journey is afforded by a careful revision in school of the chief details observed. Junior pupils should be led by means of appropriate questions to give an account of their experiences; in the higher classes the excursion may be used as a basis for composition exercises, drawing lessons, and the entry of important facts in note books. A suitable record of each excursion may also be kept with advantage by the teacher.

From the foregoing suggestions it is evident that the most important points to be kept in view with respect to arranging and conducting school journeys are as follows:—

- (a) The number of visits must not exceed twenty in any school year.
- (b) Each visit must last at least an hour and a half, and should be sanctioned beforehand by H.M. Inspector.
- (c) Every visit must have a definite educational purpose.
- (d) The number of pupils must be limited, and must be under adequate control.
- (e) Suitable records of each visit must be kept by both teacher and pupils.

Advantages of School Excursions.—The chief educational benefits arising from school journeys may be thus briefly summarised:—

- (1) They serve to supplement oral teaching, by enabling the children to connect the facts taught in school with actual objects.
- (2) They bring the pupils within range of numerous illustrations which it would be impracticable or even impossible to use in school.
- (3) They afford additional training to the powers of observation and description.
- (4) School work is invested with deeper interest, and the children are encouraged to find out things for themselves to a greater degree than would be possible under any other circumstances.
- (5) In the case of visits to country places, the children are able to collect specimens of leaves, flowers, fossils, etc., which may serve to impress the facts of previous lessons or to illustrate future ones; a love of nature is thus encouraged, and this is followed by widened sympathies and enjoyments.
- (6) Mutual regard and esteem between teachers and scholars are likely to be engendered.

VI. Scholars' Transfer Certificates.—It has been already stated (page 11) that in some school districts the difficulty of classifying new scholars is obviated by the use of Transfer Forms, stating the standard of proficiency and general character of the child wishing to be transferred from one school to another. This plan has the further advantage of acting in some measure as a check upon the tendency of roving from school to school which is sometimes exhibited by children in large towns. The following is a copy of the Scholar's Transfer Form used in all the London Council Schools:—

London County Council.

[Insert name and full
address of last school.]

No. _____

_____ School, _____ Department.

_____ 190

Scholar's Transfer Form.

Name of Scholar	
Residence	
Date of Birth	
Date of leaving above school ...	
Cause of leaving	
(a) The Standard last passed	(a)
(b) The Standard in which last presented	(b)
(c) The subject, if any, in which the child at that examination failed	(c)
(d) The subject, if any, in which the child also failed in the previous examination ...	(d)
Remarks	

(Signed) _____

Head Teacher.

Note.—Every Child admitted from another School should be desired to produce a Scholar's Transfer Form.

The following is a copy of a very suggestive form of Transfer Certificate used in some parts of the United States. It gives a fairly detailed estimate of the general character and abilities of the scholar desiring to be transferred, and is so devised as to enlist parental interest in school work.

TRANSFER CERTIFICATE.

May 22, 1905.

PUBLIC SCHOOL.

No. 6.

BOROUGH OF BROOKLYN, U.S.A.

Herbert Wm. Brown, aged 13 years in *December*, residing at 204, *Nassau Street*, has been a pupil of this school, is registered as having been properly vaccinated, and is entitled to admission to the 6th Grammar Grade.

W. J. DAWSON,

Principal.

On the other side of the Certificate is the following useful Progress Summary:—

Record of
 for the Term beginning, 190..
 Teacher
Grammar Grade, Public School, No.....

N.B.—E = Excellent; G = Good; P = Passable;
 U = Unsatisfactory; B = Bad.

SUBJECTS.	RATING AT THE END OF THE				
	1st mth.	2nd mth.	3rd mth.	4th mth.	5th mth.
English					
Mathematics					
Geography and Science...					
Hist., Geo., and Govt.					
Drawing					

	$\frac{1}{2}$ -days Absent	Times Late	Deportment
1st Month			
2nd Month			
3rd Month			
4th Month			
5th Month			

I have carefully inspected the above report :

1st Month....., Parent.
 2nd " , "
 3rd " , "
 4th " , "
 5th " , "
 S

Various forms of Record and Progress Cards, drawn up on lines somewhat similar to the foregoing, are now used with advantage in many schools throughout Great Britain. The data given afford valuable guidance in classification to the teachers of the school to which the pupil may be transferred.

EXAMINATION QUESTIONS.

1. Describe the best method of establishing and conducting a School Savings Bank. How has this plan been greatly aided during the last few years?

2. What are the conditions which should be kept in view in forming a good school library? Mention the titles of twenty books which you would choose for such a library, and state what rules you would lay down for its management.

3. To what extent is it desirable to employ Home Lessons as adjuncts to school work? State for what subjects and for what classes of scholars they are best suited, and how much time it is reasonable to require for their preparation.

4. Describe any means by which the interest of the parents of the children in the school and its work may be awakened and sustained.

5. Say in what way it is possible for an elementary teacher to exercise a useful influence over the reading and conduct of the pupils out of school.

6. Why is a school library an important supplement to the ordinary school reading books? Give hints for selecting, arranging, and using a school library.

7. Considerable difficulty is often experienced by teachers in classifying pupils transferred from other schools. What methods can you suggest for lessening or removing this difficulty?

8. Should home lessons refer chiefly to past or future teaching? Give your reasons.

9. Describe a good method of teaching the elements of Home Geography to very young children.

10. It is said in the "Instructions to Inspectors" that besides the usual course of instruction, an excellent school "seeks by other means to be of service to the children who attend it." Can you name any such means, and say which of them are likely to be most effective?

11. How far, and in what ways, would you seek to cultivate in the young the acquisition of (a) general knowledge, (b) general intelligence?

12. Describe any means by which Thrift may be encouraged among the children in your class.

13. Draw up a list of rules for the use of a school library, and name a dozen books, including fiction, biography, and popular science, suitable for elder scholars.

14. In teaching Geography why is it necessary to "begin at home"? Illustrate your answer by giving a sketch of a lesson on the geography, physical and topographical, of the place in which you have lived.

15. If a Penny Savings Bank were attached to your school, in what way do you think you could properly promote its success; and by what other means could you encourage the habit of thrift among your scholars?

16. How may visits to ancient buildings and picture galleries serve to illustrate lessons in English History?

17. Give a short list of the different kinds of books which you would expect ordinary boys and girls to be able to read by themselves immediately after quitting the day school. Mention some good books which you think are rather too difficult for such children.

18. Say by what means the influence of a teacher can be so used as to encourage in the scholars (a) thrift; (b) obedience and helpfulness to parents; (c) a habit of industry.

19. By what means would you teach little children to distinguish a hill from a valley, a canal from a river, a lake from a sea, or an island from a peninsula?

20. Describe any visit that you have made with your pupils to a museum or other place of interest. What educational advantage do you think that the scholars obtained?

21. Summarise the advantages and disadvantages of Home Lessons.

22. Detail some of the methods by which a healthy appetite for knowledge may be encouraged in children.

23. How can a school be made a happy place for young children? By what means besides the intelligence of the teaching can school be made attractive to children of the poorer class?

24. Name some suitable subjects for home lessons and state the most suitable times and methods for their revision. What bad habits are produced by want of attention to home lessons?

CHAPTER X.

SYSTEMS OF ORGANISATION.

THE solution of the problem respecting the provision of effective teaching power at moderate cost has from time to time led to the adoption of various systems of school organisation, each devised and worked according to the educational aims, possibilities, and appliances of its own period. Considered in the order of their establishment these may be described as (a) the *Individual System*, (b) the *Mutual System*, and (c) the *Collective System*. At various times other schemes have been in vogue, combining certain characteristic features of each of the foregoing; these may conveniently be classed under the head of *Mixed Systems*.

A brief review of each system may be found useful in providing the ultimate explanation of many features of organisation exemplified in elementary schools of the present time.

1. The *Individual System* probably arose during the monastic period, and continued far into the nineteenth century, its survival being exemplified in the dame schools till 1870. Under this system of organisation the master or mistress conducted and taught the entire school single-handed, sometimes occupying a raised desk or platform, while the pupils were generally seated at benches or desks arranged round the room. The instruction was directed to each pupil individually, and class-teaching in the modern acceptation of the term was quite unknown. Great prominence was given to memory work, often without the least attempt at explanation, and many of the text-books used were in catechism form. No use whatever was made of the blackboard, and in most cases there was an entire absence of teaching appliances.

Advantages of the System:—

- (1) Instruction and explanation could be regulated to suit the exact requirements and abilities of each scholar.
- (2) Each scholar came into direct personal contact with the teacher daily.
- (3) As each worked independently of the rest, the method encouraged the formation of habits of self-reliance, perseverance, and independent effort.
- (4) Progress was as rapid as the individual pupil's capacities permitted.
- (5) While the actual period of individual teaching lasted, the scholar could be made to put forth his best efforts.

Defects :—

- (1) The sympathy of numbers was lacking ; the work of each pupil had very little in common with that of the rest, and there was thus an entire absence of the spirit of class-emulation.
- (2) The teacher's time and efforts were not economised, as he was constantly correcting the same errors and explaining the same difficulties.
- (3) Sufficient stimulus and encouragement were not provided for the dull pupils, or for those of merely average ability.
- (4) The teacher's attention was occupied so much with individuals that little opportunity was given for exercising supervision over the rest, who were thus tempted to waste much valuable time.
- (5) Consequently discipline was apt to be weak, and severe punishments were often inflicted.
- (6) Except while individual pupils were saying lessons there was no change of posture or place ; and school work to the majority became dull and monotonous.

2. The Mutual or Monitorial System was first introduced into England under the rival auspices of Bell and Lancaster during the early part of the nineteenth century, though the principle itself is of much older growth. Its characteristic feature was the instruction of the pupils through the agency of their fellow-pupils, by means of the employment of monitors, whose ages ranged from about 8 to 14 years, to take charge of the various classes throughout the school. Though chosen from among the pupils these monitors had a distinct status as teachers, and were in reality the ordinary teachers of the school under the master, whose duty was to superintend their work and direct their methods of instruction, but who was not attached to any particular class. The entire school was divided into small groups or classes, containing scholars of nearly equal proficiency, and each group was in charge of a monitor. When the class was large, the monitor was provided with an assistant; and in the largest schools the head teacher's supervision of the whole was aided by having a kind of head monitor over every three or four classes according to convenience of space. The classes were arranged in semi-circles, squares, or rectangles, on the floor; and place-taking supplemented by an elaborate system of marks and registration served to maintain attention and emulation.

Sometimes the children were arranged in pairs, a boy of inferior ability being taught by one more advanced than himself. The monitors were changed at intervals, and spent part of their time in teaching, and the rest in learning. In some cases they received instruction from the master out of school hours.

The plan was first tried by Dr. Andrew Bell, when superintendent of the Military Male Orphan Asylum at Madras, between the years 1789 and 1797; hence he called it the "Madras System." It was afterwards introduced by him into England, and a school on slightly modified principles was carried on at about the same time by Joseph Lancaster at the Borough Road, London. The facilities which the system afforded in cheaply conducting large schools, quickly led to its general adoption, and many schools on the same system were founded throughout the country.

Though at first friendly, Bell and Lancaster eventually became estranged owing to a controversy respecting priority of claim in introducing the system. The dispute was soon afterwards greatly aggravated by sectarian jealousy; the Church party, as a rule, taking the part of Bell, while the Dissenters mainly sided with Lancaster. From their rival supporters sprang two well-known educational societies; the friends of Bell established the National Society, the schools of which became therefore known as National Schools; Lancaster's supporters founded the British and Foreign School Society, and schools organised under its auspices were called British Schools. Both societies still exist, and have done incalculable good for the education of the country, though they have long since outgrown the system they were originally intended to promote.

The principle of mutual or monitorial instruction was the basis insisted on by both founders, and though monitors had been employed to some extent previously, the systems of Bell and Lancaster were the first really successful attempts to carry elementary education to the children of the masses. The differences between the two schools were chiefly confined to details; Bell's classes were fairly large, each containing from 30 to 40 children; while Lancaster preferred small classes. Bell employed two monitors to each group,—one to teach and the other to maintain order; while one monitor only was responsible for the teaching and control of each of Lancaster's small drafts. Bell chose the best-behaved and most trustworthy scholars as monitors, while on the other hand Lancaster often considered it advisable to employ the most mischievous. Reading was the basis of classification in Bell's school, but Lancaster adopted a dual basis of Reading and Arithmetic; in the latter subject, moreover, he generally preferred class-teaching to individual work. Both founders disliked corporal punishment; Bell tried to maintain order by means of deprivation of pleasure, a register of offences or "black-book," and an elaborate

system of progress records which he termed the *Paidon*. Lancaster made an excessive use of rewards, while his punishments were mainly designed to draw upon the offender the ridicule of his fellow-pupils. Each, however, had a strong belief that the constant employment of the pupils was the best preventive of mischief, and this was undoubtedly one of the most valuable and praiseworthy features of the method.

The Monitorial-System established by Bell and Lancaster is interesting as having been the forerunner of the modern Pupil Teacher System, which may be considered a modified development of it.

The following is a brief summary of the strong and weak points of the system :—

Useful Features :—

- (1) The system was cheap ; education was brought within easy reach of the poorest, as a large number of children could be educated at very small cost ; and up to a certain point, increase in the number of pupils made but little difference to the efficiency of the work.
- (2) Habits of industry, regular work, and attention were fostered. All the scholars were kept employed under supervision, and thus the opportunities for idleness so prevalent under the individual system were entirely removed.
- (3) School work was simplified and graduated ; the large number of classes allowed ready means of promotion to those who could make rapid progress.
- (4) The constant appeal to emulation had a beneficial effect on many who were unable to respond to a higher motive.
- (5) The master was relieved from the strain and worry necessitated by the individual system, and the irksomeness of school-keeping was greatly reduced.
- (6) By teaching what they themselves knew the monitors fixed it more firmly in their own minds, and were stimulated to learn more.
- (7) For the first time an attempt was made by the scheme to systematise school work ; while the subsequent disputes waged around it drew public attention to the subject of education, probably to a greater extent than had ever been the case before.

Defects :—

- (1) The system gave the learner very little opportunity for direct contact with a superior intellect ; for owing to the large number of children in each school, the master knew very little of his pupils at first hand.
- (2) It was generally very difficult to find monitors whose faithfulness and honesty could be thoroughly relied on, and who had sufficient skill and ability to be useful as teachers.

- (3) The instruction given by the monitors was lacking in clearness and intelligence, and it was therefore mechanical and superficial; many of the lessons were exercises in mere memorising or blind application of rules.
- (4) The incompetency of the monitors, their want of preparation, their childish tyranny, and abuse of power created numerous difficulties; and constant appeals to rewards and punishments were necessary.
- (5) Many parents objected to their children being taught by fellow-pupils; others failed to see that the office of monitor conferred any benefit, but looked upon it as a waste of time.
- (6) Owing to the large number of classes taught in the same room, it was almost impossible to work the system without much noise and confusion.

3. The Collective System has for its characteristic feature the simultaneous instruction of a large group of children by an adult or trained teacher. It exists in several forms, of which the chief are:—

- (1) The Training or Glasgow System.
- (2) The German or Classroom System.
- (3) A third form, known as the Tripartite System, which is now practically obsolete.

(1) The Training System was originated at Glasgow by David Stow about the year 1836. It differed from the monitorial plan in several important particulars, of which the most distinctive was that the influence of the master on the children should be direct and continuous; and to this end it was felt that some amount of professional training is necessary in order that the teacher may be able to influence his pupils to the best advantage. Training-Colleges, Practising Schools, and Criticism Lessons thus all have their root in the system.

The name "Training System" was applied by Stow from the fact that the main principle to be kept in view was the thorough *training or education of the child's whole nature*—moral, mental, and physical. Moral training was centred on special Bible lessons, together with moral lessons based on observation of children's virtues or faults exhibited in the school and playground (the latter being called by Stow the "uncovered schoolroom"); intellectual training was aimed at by the use of object teaching, vivid description or "*picturing out*," frequent questioning (especially in the elliptical form), and simultaneous utterance; while physical training was secured by systematic drill and the provision of playgrounds.

Stow was one of the first educational reformers to recognise the value of Infant Training, and the importance of what he called the "sympathy of numbers," by which he meant the use of collective teaching as a means of quickening the intelligence of young children. In the professional training of teachers he was one of the earliest and most effective workers, and the plan of requiring all candidates for the teacher's office to give public lessons which were afterwards criticised by their fellow-students—a plan now universally adopted in British training colleges for teachers—may be said to have originated with him.

For convenience in teaching, the children were divided into three grades or departments.—Infants, from five to seven years of age; Juniors, from seven to ten; and Seniors, from ten years upwards. Large classes were grouped for oral instruction, and in order that every child might see, and be seen by the teacher, Galleries were brought into requisition; the name *Gallery System* is therefore sometimes used with reference to the scheme. All schools were mixed, the founder holding the opinion that the girls serve to refine and to elevate the boys morally, while the boys stimulate and improve the girls intellectually. The influence of Stow's system on true education has been both beneficial and lasting.

Permanent Advantages of the System :—

- (1) The system aimed at education in its highest sense; it sought to develop the child's moral, mental, and physical powers simultaneously.
- (2) The necessity for definite training and preparation on the part of the teacher was insisted upon.
- (3) Wherever possible, *mental training* was substituted for the process of merely imparting information.
- (4) Self-reliance and independent effort was therefore fostered to a large extent in the scholars.
- (5) For the first time, importance was attached to the playground from its moral as well as from its physical value.
- (6) The introduction of the Gallery for oral teaching, the method of vivid description or "picturing out," and the systematic use of questioning, were all valuable innovations in education.

Defects of the System.—Most of these have since been removed :—

- (1) The plan was too general; individual children, especially the slow or dull, were liable to be neglected.
- (2) Generally speaking, it was more suited to the needs of infants than older children.
- (3) Too much importance was attached to the efforts of the teacher, and too little to those of the pupil.

- (4) The excessive use of simultaneous answering deceived the teacher as to the true intellectual progress of many of the children.
- (5) The work often lacked variety, and unduly heavy demands were made upon the teacher's physical and mental powers.

(2) **The Classroom System** seeks to provide a separate room and a skilled adult teacher for each class. It is found in nearly all German schools, and hence is sometimes called the Prussian or German System; though it is now common enough in other parts of the Continent and also in the British Isles and America.

The distinctive characteristics of the system are the almost exclusive employment of adult teachers for each group, and in many cases simultaneous instruction in the same subject is carried on throughout the school, thus admitting of almost absolute freedom of classification; from this latter feature the method is often called the Simultaneous or Synchronous System of Organisation.

In the most modern type of school the classrooms are arranged to seat from forty to sixty children. Galleries are generally dispensed with, but provision is made for adequate supervision by having the floor raised gradually in steps for the back rows of desks.

Where a sufficient number of classrooms is not available, an attempt is often made partially to isolate the classes by the use of curtains or movable partitions. This arrangement has been called the "Privy Council Method" or the "Battersea Method" because it was first suggested in a Minute of the Privy Council and tried in the Practising Schools of the Battersea Training College. The recent Building Rules of the Board of Education, however, now state that "The number of classrooms should be sufficient for the size and circumstances of the school. The excessive use of movable partitions should be avoided." Objections to the use of curtains have been pointed out in a previous chapter.

There can be no doubt that when carried out under the most favourable conditions, the Classroom System possesses many advantages over those already examined. Of these the following may be considered the most noteworthy:—

- (1) Each class is completely isolated, and distractions are thus reduced to a minimum.
- (2) With a good teacher, attention can be better sustained, and greater progress made, than would be possible under any other circumstances.
- (3) The teacher's efforts are economised and used to the best advantage.

Objections to the System.—The following considerations have been urged against the classroom method of organisation :—

- (1) It is very expensive with respect to both school buildings and staff.
- (2) It is not suited to the requirements of small schools.
- (3) It is mainly adapted to the employment of adult teachers, and does not readily lend itself to the early training of junior teachers.

(3) **The Tripartite System** was suggested in 1845 by the Rev. Henry Moseley, one of H.M. Inspectors of Schools, and derived its name from the fact that the work of the school was arranged on a three-fold plan. It was well adapted for working in oblong school-rooms which possessed few suitable classrooms or none at all.

“The first and essential element of the plan,” says the proposer, “is the separate room for oral instruction, the devotion of the labours of the head-master chiefly to this object (relieved occasionally by the second master or pupil teacher, with whom he exchanges duties), and the throwing of the children in three great divisions, of fifty or sixty, successively into that room for an hour twice a day for the purpose of that instruction. Every other element of the plan admits of modification, but not that. . . . In all that requires the independent exercise of judgment and discretion in the business of instruction—in all that involves the sanction of religion and consideration of moral responsibility, and thus needs to be presented to the mind of the child with the gravity and authority which can only be brought to it by the mind of an adult teacher, and in all that concerns the development of the judgment and intelligence of the child—the direct interference of the master in its education is necessary to any useful result, as well in reference to the youngest child in the school as to the oldest.”—(*Minutes of Committee of Council, 1845*).

An oblong schoolroom was divided into three sections by movable curtains or sliding partitions; and thus by the rotation of the classes in each section every child was brought into personal contact with the head teacher for at least a third part of the time spent in school. To facilitate this method of rotation, all the subjects of instruction were divided into three groups; and separate localities were assigned to the teaching of each. The subjects were grouped in the following way :—

- (1) Those requiring the head master's oral instruction, *e.g.*, Scripture Lessons, Object Lessons, Geography, History, or Grammar.

These were to be taught by the master to the children seated on a gallery at one end of the schoolroom.

Where available, a large classroom containing a gallery was utilised for this purpose, and it was then only necessary to divide the schoolroom into two parts for the other sections.

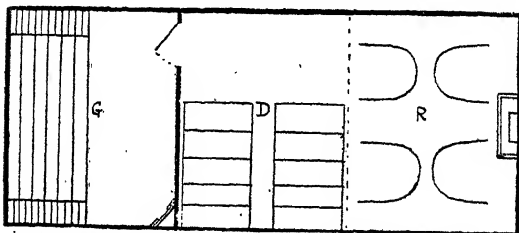
- (2) Lessons mainly requiring silent work, such as Writing, Drawing, Committing to Memory, Dictation, and Arithmetic on slates or paper, were taught in desks under the supervision of an assistant or pupil teacher.
- (3) Reading lessons were conducted on the open floor space under the charge of assistants, pupil teachers, or monitors.

Corresponding to the foregoing classification of subjects, the children were arranged in three equal divisions. After the morning devotions and Bible lessons were over, each division occupied one of the fixed localities; the lessons usually lasted an hour, and then a re-arrangement took place. Thus in the course of every half-day, each division came under the influence of the master during the oral lesson; each was occupied for an hour in writing, arithmetic, etc., and each received an hour's instruction in reading.

The following time-table shows how these arrangements were carried out during a single half-day, the different groups of scholars being indicated by Roman numerals.

TIME. A.M.	GALLERY.	DESKS.	FLOOR.
9 to 10	I. Scripture	II. Writing	III. Reading
10 to 11	II. Grammar	III. Arithmetic	I. Reading
11 to 12	III. Object Lesson	I. Writing	II. Reading

The annexed floor plan shows localities occupied by the classes.



G = Gallery; D = Desks; R = Drafts for Reading Lessons.

Good Points of the System :—

- (1) It endeavoured to secure both collective and individual instruction.
- (2) Each teacher had the work allotted to him for which he was presumably best qualified.
- (3) Adequate provision was made for variety throughout the school day; change of work, of teachers, and of place were provided; two-thirds of the work was done sitting and one-third standing.
- (4) Every child was regularly brought under the direct personal influence of the head teacher.

Weak Features :—

- (1) Where the ages and attainments of the children varied widely (*e.g.*, from infants to advanced pupils), the three-fold classification was not sufficiently comprehensive to provide suitable work for all.
- (2) The system was not suited to very large or very small schools, because in the former the sections were unmanageably large, while in the latter they were too small to warrant the employment of a separate teacher for each.
- (3) The children had to be kept in the same classes for every subject, so that freedom of classification was practically impossible.
- (4) By limiting their attention to certain subjects, the work of the teachers was liable to become monotonous and mechanical; while at the same time they were not likely to feel the same amount of direct responsibility which they would do if they had charge of every subject in a class.

It is thus evident that while apparently well conceived from a theoretical standpoint, the Tripartite arrangement was found to be subject to numerous practical drawbacks, which served to account for the fact that it was never widely adopted and is now quite obsolete.

4. The Mixed or Pupil Teacher System was established by the Minutes of the Committee of Council in 1846, and has been called "the backbone of modern English elementary education." To a greater or less extent it involves certain principles exemplified in the preceding systems, but it is really the outcome of the monitorial system, from which, however, it differs in several very important particulars :—

- (1) By requiring a definite period of apprenticeship.
- (2) By deferring the actual period of teaching responsibility until the pupil teacher has had some opportunity of gaining experience by the observation of the methods of skilled and experienced adult teachers.

- (3) By paying for his services.
- (4) By providing him with a definitely planned course of instruction, and special advantages for instruction and study.

Advantages.—In favour of the system the following advantages may be claimed :—

- (1) It provides a reliable source from which the teaching profession may be recruited.
- (2) Ability to teach, like aptitude in most other arts, can be best acquired in youth by means of the observation and imitation of good models.
- (3) Success in teaching and governing children depends to a very great extent upon practical experience, and this is best obtained by serving a period of apprenticeship under proper guidance.
- (4) The more mechanical parts of school work, such as marking sums, superintending silent lessons, drill work in spelling and reading, etc., may be entrusted to pupil teachers equally as well as to adults, and at considerably less expense.
- (5) The system is a natural one; pupil teachers are likely to impart information to others in the order and manner in which they have acquired it themselves, while at the same time they are probably better able to appreciate the difficulties of the scholars than an adult with no previous training in the art of teaching.

Possible Defects of the System, and suggested Remedies.—Many of the objections raised against the pupil teacher system are due more to imperfect modes of operation than to the system itself.

- (1) Pupil teachers should not be held responsible for the entire control and teaching of a large class. The system was not intended to substitute the raw, untrained pupil teacher for the experienced adult, though hitherto this has sometimes been done in schools provided with the minimum staff allowed by the Code. The hours spent in actual teaching, especially during the earlier years of apprenticeship, should be few in number, and the pupil teacher should be trained to his business by being chiefly required to assist an older teacher. Many of the larger Education Authorities do not now take their pupil teachers into account when determining the school staff.
- (2) Sufficient energy is not available for the pupil teacher's intellectual work when the teaching effort is too exacting or prolonged. The obvious remedy here is to limit the time devoted to teaching, and to give the pupil teacher more opportunity for the observation of skilful methods, and for properly directed private study. No pupil teacher must be employed in school work for more than half the total number of meetings during the school year.

- (3) Where knowledge and experience are necessarily limited, the exercise of control and class management may give rise in some cases to an imperious or dictatorial manner in the pupil teacher. A regular scheme of model and criticism lessons systematically carried out during each year of apprenticeship will serve to minimise this tendency. The time-table of all schools where pupil teachers are employed should be so framed that the head teachers may be free, once a week at least, to listen to their pupil teachers while they are conducting their classes, and to point out to them afterwards the reasons why some methods are right and others wrong.
- (4) With the greatly extended application of the Centre system of instruction, the widened syllabus of subjects for study, and the shortened period of time which is at the disposal of pupil teachers in preparation for the final examination of their apprenticeship, there is often considerable danger that in their anxiety to excel in studies they may minimise or overlook the importance of their work as teachers. It is therefore very desirable that in connection with their work in school, all pupil teachers should be made responsible at any rate for a small class during a continuous period, and thereby learn to correlate the subjects of instruction with one another, to exercise discipline, and to exert a beneficial influence over the children. A further advantage to be derived from continuous employment of this character is that an adequate test is thereby provided for estimating the physical fitness and mental disposition of the pupil teacher for his work.

An examination of these possible dangers and their remedies will serve to show that the full advantage of the pupil teacher system can only be secured by a method of mixed organisation in which the services of trained and experienced adult assistants are combined with those of the pupil teachers; and this is the plan now adopted in most schools.

Mixed Schools.—The co-education of boys and girls has been carried on under practically all the systems of organisation already described, though this has generally arisen from motives of economy, and with little regard to the question of the advantage or otherwise of teaching both sexes together. It has already been mentioned, however, that under the Training or Glasgow system founded by Stow, mixed schools constituted one of the fundamental characteristics.

The limited number of children in rural schools has naturally necessitated the grouping of both boys and girls under one head teacher, since the provision of separate departments for only a few children is out of the question; but in many very large mixed town schools the girls and boys are taught in entirely distinct classes by teachers

of their own sex; in others again they are taught together in the same classes.

The co-education of the sexes predominates in American primary schools and very often in the secondary schools and colleges. "Where there has been a thorough and proper trial of the co-education of boys and girls," says an American authority, "the testimony seems to be strongly and almost exclusively favourable to that system. In many of the large cities of the Union this is the prevalent plan of organisation, and the reports of superintendents are quite emphatic in its approval." It is worthy of note that while in England mixed schools are generally in charge of a master, those in America are more frequently under a mistress.

Mixed schools are common in Switzerland and Holland, and are also found, though to a less extent, in France and Germany; in France, however, though boys and girls attend the same school, they are usually taught separately. The general opinion held in England seems to be that beyond the infant or junior stages separate departments should be provided wherever circumstances will allow such an arrangement; though experience has proved that under skilful management mixed schools can be made to confer several important advantages in the direction of general training which are not so readily obtained when the sexes are taught separately. These, however, are not without certain objections, and both sides of the question may be briefly summarised as follows:—

Advantages:—

- (1) The presence of girls generally exerts a refining influence over the rougher natures of the boys, restraining any tendency to inconsiderateness and rudeness. It is almost impossible to raise boys morally as high without the presence of girls as with them.
- (2) The education received by girls with boys is generally more accurate and lasting than that received in a girls' school.
- (3) By associating and competing with boys in school work, the shy and nervous manner of many girls is greatly improved, and a greater degree of self-reliance and independence of action may be implanted.
- (4) Girls brought up with boys are generally less likely to be romantically inclined than when taught alone.

Disadvantages:—

- (1) There cannot be that sympathy between girls and a master which commonly exists between girls and a mistress.
- (2) Some girls are apt to develop a forward and self-assertive manner by associating with boys.

- (3) The fact that the education of girls and boys has generally a somewhat different end in view prevents, to some extent at least, the possibility of uniform instruction.
- (4) The provision of lessons in needlework, cookery, etc., for girls, and drawing or woodwork for boys, sometimes necessitates a complicated classification and time-table.
- (5) Girls generally require different disciplinary treatment from boys, and therefore when both are taught together uniform methods for maintaining order are scarcely possible.

These disadvantages may be minimised, however, by careful and judicious management; but it is generally advisable to group the boys and girls in separate parts of the class instead of arranging them promiscuously, and in all cases separate cloakrooms and playgrounds should be provided.

EXAMINATION QUESTIONS.

1. To what defects is the Pupil Teacher System liable, and how would you propose to remedy them?
2. What improvements in elementary education are commonly associated with the names of Bell and Lancaster? Give particulars.
3. Explain briefly what is meant by the "Tripartite System" of school organisation.
4. State the advantages and disadvantages of teaching boys and girls together in the same school.
5. What educational benefits have arisen from the introduction of the "Training System"?
6. Give some account of the Monitorial System of school organisation, stating in what respects it was valuable and wherein it was defective.
7. Estimate the value of the Pupil Teacher System.
8. Describe the so-called Prussian System, and state its advantages and disadvantages.
9. Distinguish between individual, mutual, and collective systems of organisation, and state briefly, with reasons, which you consider to be best adapted to present-day requirements in elementary teaching.
10. Explain the origin of the terms "National" and "British" as applied to schools, and give a short account of their early establishment.

APPENDIX I.

SPECIMEN SCHEMES OF OBJECT LESSONS ISSUED BY THE BOARD OF EDUCATION.

THE following lessons deal with the ordinary phenomena of common life and with objects familiar to the children. The teacher's choice is not confined to these lists; other objects will be accepted, subject to the approval of the Inspector. Any of the objects may be dealt with at the discretion of the teacher in more than one lesson, and although they have been grouped for convenience of reference, it is not intended to prescribe any specified number of them for a yearly course. With different treatment the same object may be adapted to more than one standard. Some teachers may prefer to deal with the same object in successive years, or to recur to it after a year's interval, expanding the study to suit the growing powers of the scholars. To meet the varying requirements of teachers it will be noticed that in some cases the names of the objects have been merely enumerated, while in other cases a few suggestions have been added as to the mode of treatment.

I.

Plant Life.

(a) The Study of Plants as growing things.

Grow an onion in a bottle of water and note appearance of root and stem. Make a model in clay of the various stages of growth at short intervals.

Grow mustard seed on damp flannel and note stages of growth.

Notice a few curious roots.

The carrot. Cut off the top of one and grow it in a saucer of water.

Contrast the root of a daisy (fibrous).

Roots which walk. Strawberry or strawberry.

Violet root.

Contrast root of Iris and Solomon's Seal in their modes of extension.

Stem. Count the rings in a trunk that has been felled. Rings, how produced; estimate age of tree; the record of wet or dry seasons.

Climbing stems. Ivy.

Train bindweed up a stick and note that it turns to the right. If you unwind it and force it the other way (to the left) note how it resumes its old direction again, holding the stick with one of its leaf stalks to get a purchase for the change.

Simple experiments to show effect of light on (1) leaves and (2) roots. Celery; blanching.

Leaves of deciduous trees contrasted with leaves of evergreens. Contrast leaves of holly, ivy, and box with leaves of oak, elm, and beech.

Note autumn tints. Collect and press leaves of various colours in autumn.

Buds. Leaf buds and flower buds.

Parts of a flower.

Fruits. Different kinds.

(b) Blossoms, Fruits, Seeds, and Leaves.

Parts of a flower.
 Flowers of curious shape.
 Pea blossom.
 Insects and flowers.
 Colours of flowers and insects.
 Fruits. How seeds are scattered.
 Shooting seeds.
 Flying seeds.
 Curious flowers, *e.g.*, primrose; compound flower (daisy); water lily.
 Leaves. Shape, veining, arrangement.
 Flowers as supplying (1) weather-glass, (2) clock, (3) calendar.
 Examine celery plant. Cut leaf stalks into thin sections to see how a plant is built up.

(c) How plants are adapted to their surroundings.

A bunch of spring flowers (according to time of year).
 A bunch of summer flowers " " "
 A bunch of autumn flowers " " "
 Flowers and the soil. Bog plants.
 Riverside plants.
 Plants that grow in running water.
 Plants that grow in still water.
 Meadow plants.
 Plants of the heath and moor.
 Plants of the hills. Plants of the wood Plants of the sea-coast and salt marshes.
 Sundew and flesh-eating plants.
 Ferns.
 The spores of ferns.
 Grow some spores in a pan under glass and watch growth and development of a fern. Contrast with growth of mustard from seed.
 Mosses.
 Lichens.
 Fungi.
 Simple experiments in manuring plants.
 How plants help or hinder each other's growth.
 Parasites. Mistletoe.
 Plants which help or injure man.

II.

Animal Life.

(a)

The Cat (compare with Dog).—Eyes, rough dry tongue, soft pads and sharp claws, teeth, method of holding prey, drinking, covering of fur, whiskers, tail.

The Cow (compare with Sheep and Goat).—How she takes her food, teeth, chewing, milk (cheese and butter), tail, hoofs, covering, ears, horns, nose.

The Horse (compare with Donkey).—Covering, teeth, hoofs, tail, mane.
 The Rabbit (compare with Hare).—Teeth, legs, feet, claws, covering, tail, whiskers, ears, eyes.

The Mouse (compare with Rat and Water Rat).—Teeth, paws, tail, whiskers, eyes, ears.

A Fish.—How fitted to live in water, weight, shape, covering, temperature, movements.

A Plaice (compare with Herring).—Flat, eyes on one side of head, gills, movements.

Animals which sleep in winter.—Examples: Squirrel, dormouse, common snake, frog, toad, snail, slug. Preparation made for sleep.

Mole.—Shape, snout, teeth, paws, claws, eyes, ears, fur, food.

Hedgehog.—Covering of spines, how it rolls itself into a ball, and why; head, teeth, food.

Common Snake (compare with Viper).—Shape, covering, teeth; how it moves; how it swallows its prey.

Frog (compare with Toad and Newt).—Movement, capture of prey, breathing, winter quarters.

Garden Snail (compare with Slug).—Shell, mantle, head, horns, eyes, food, preparation for winter sleep.

Earth worm.—Shape, rings, locomotion, food, usefulness.

Spider (contrast with Bee).—Shape, segments, legs, eyes, jaws, spinnerets, web, breathing organs.

(c)

Paws and Claws and their uses.—Cat, dog, rabbit, mouse, mole, frog.

Tails and their uses.—Horse, cow, donkey, dog, cat, monkey, harvest mouse.

Tongues and their uses.—Cat, dog, cow, woodpecker, frog.

Teeth and their uses.—Man, cat, cow, horse, rabbit, snake, fangs of poisonous snakes.

Hair, Fur, Wool, and their uses.—Cat, mole, dog, sheep, fox.

Beaks of Birds and their uses.—Duck, fowl, parrot, sparrow, goat-sucker, heron.

Feet of Birds and their uses.—Duck, fowl, swift, owl, etc.

Insects.—Examples: Bee, beetle, butterfly, cockroach, silkworm. Insect development, legs, wings, segments, mouth, breathing apparatus, ovipositors.

III.

The Sky, the Air, the Surface of the Land, and Water.

(a) The Sky.

Sunrise, noon, and sunset. (Note the object over which the sun is seen to rise from month to month. Note sun's position at noon, and its varying height above horizon.)

Shadow. (Note by aid of a spike erect on a flat disc the varying length of the shadow at noon. Study the shadows of objects. Variation in sharpness and depth.)

Moon. (Note the changes. Draw the shape from week to week.)

A few of the brightest constellations. (Make diagrams on square ruled paper from a study of the sky itself. Great Bear and Pole Star; Lyre and Vega; Cassiopeia.)

Planets. (Note any planet visible when the lesson is given. Mark its position on square ruled paper for a few weeks.)

Varying length of day and night.

(b) The Air.

Wind. Varying direction. (Note and keep record of the direction of the wind from day to day.)

Warmer and colder winds; rainy and dry winds.

Moisture in the air shown by seaweed; string (changing tension).

Wet cloth dries in the wind (water turns to vapour).

Vapour turns to water. (Breathing on slate. Clouds on hills. Evening mists.)

Clouds in the sky. Three chief kinds: "heaps," "beds," "feathers."

Rain. (Note size of drops. Raindrops on dust form little balls. Note effect of heavy rain in tearing up roads. Note the channels so made, and the arrangement of the sand and pebbles washed to a distance.)

Rainbow. (Note the succession of colours. Note position of sun behind observer and of the bow where the shower of rain is falling. Note that height of arch changes. When is it higher and when lower?)

Rainbow colours on shells, film of tar, etc. Feathers of birds.

Dew. (Note when formed. Cloudless weather. On what does it lie thickest?)

Hoar frost.

Snow. (Note size of flakes. Movement of flakes in the air as they fall. Snowdrift. Snow squeezed into ice.)

Hail. (Note when it falls. Examine hailstones. Is the hail accompanied by thunder?)

Thunder and lightning.

(c) The Surface of the Land.

Level or sloping. Simple way of measuring slope. Height of School and neighbouring hill-tops above sea level.

Flow of water over the land. Neighbouring stream or streams. Water-partings.

The river basin in which the school is situated.

Construct a model fountain and make simple observations on the pressure of water. Milldam. A "head" of water. Notion of falling water as a motor.

Soils. Clay, sand, slate, granite, chalk, quarries near school, gravel pits, clay pits, brick works. (Note how the rocks lie, in layers or in masses without structure.)

Stones in the brook, water-worn; pebbles on beach, rounded; pebbles in gravel pit, often with sharp edges, perhaps iceborne.

Difference between sand and mud. Crumbling rocks. Effect of frost on damp rocks.

Caves by the sea formed by the waves; caves inland formed by rain dissolving limestone; stalactites. (A lesson for the schools in limestone regions or near rocky coasts.)

Building stone, marble, slate, Bath stone, sandstone, etc.

In marble, note shells, etc. Note plants in coal.

Volcanic rocks. Lava, brimstone, pumice stone, basalt or whinstone. (According to the nature of the district.)

Rock salt: crystals of salt. Salt in sea water. Minerals in solution.

Hard and soft water. Rain water compared with streams from chalk or limestone; leavings after evaporation. Fur in kettles. Softening hard water.

(In certain districts) other minerals in solution, sulphur wells, iron springs, medicinal waters.

Mortar and cement. (Slake lime and make mortar; note the heat, etc.)

Surface soils. Crumbled rocks. Waterborne sand and mud. Vegetable mould and earth worms.

Vegetation and cultivation. Forest, moor, and heath. Heathers.

Hedgerow trees, elms, ashes.

Trees of the forest, oak, beech, birch.

Evergreen trees, pines and firs.

Evergreen plants and shrubs, holly, ivy, box. Contrast evergreen and deciduous leaves. (Note changes at fall of leaf. Autumn tints. Press specimens.)

Riverside trees, willows, poplars, aspens.

Hill pastures and meadows. Turf on the downs and hay in the valleys.

Gardens and their contents. Garden fruits and wild fruits. Garden flowers and wild flowers.

(d) Water.

Standing water; ponds; pond life.

Springs and running water. Clear water looks shallower than it is. Simple experiments in illustration.

Study of flow of a stream. Where the flow is quicker (a) in the middle; (b) on one side, outer and inner bend. Where the bank is eaten away and where sand is spread out. Varying bottom; deep pools, shallows, sand banks. Confluence of tributary. Delta. Measure the speed at which the water flows.

Study of sea shore. Rocky and sandy coasts. Soundings. The rise and fall of the tide. Currents. Drifting sand. Effect of frost on cliffs. Breakwaters. Layers of soil and rock exposed down the side of a cliff.

Measure with thermometer the temperature of (a) a spring; (b) a stream; (c) a pond; (d) the sea.

Ice. Study hardness, mode of fracture; splitting blocks with a needle. Does it sink or swim in water? Easy to make two surfaces of ice freeze together. Simple experiments with ice.

Watch and record behaviour of thermometer plunged in melting ice.

Melt some ice carefully to find out whether it takes up more or less room than the water into which it changes. (Force a mass of ice into a lump of clay and let it melt there).

Freeze some water in a bottle and note bursting of bottle. Bursting of pipes.

Notes on expansion and contraction of substances illustrated by behaviour of water at different temperatures. Preliminary notion of thermometer.

Watch cold spring water being heated to boiling point in transparent glass vessel. Note bubbles of air given off, and as the water is heated bubbles of steam rising from below. Observe force of compressed steam. Preliminary notion of steam engine.

Dribble powdered alum into clear water. Hang thread in the solution and note the formation of crystal. Alum and other crystals.

Expose to the air crystals of (1) salt; (2) soda. Note change. What difference? What difference according to weather? Expose to the air crystals of saltpetre, and note result.

Dribble salt into clear water and note that it dissolves, quicker at first, then slower, at last no more is dissolved. Place a fresh egg in saturated solution and afterwards transfer it to clear water.

One liquid is denser than another. Compare water and mercury. Things which float in mercury and sink in water.

Upward pressure of water on bodies dropped into it. Why bodies sink or float. Why steel ships float. Why cork floats.

Simple experiments in displacement of water.

Simple experiments in pressure of water and pressure of air. Syphon. Squirt. Pump. Diving bell.

Distillation of water. Filtration.

Water; a combination of two gases, oxygen and hydrogen. Simple experiments.

IV.

Object Lessons for Town Schools.

The water we drink—how obtained.

[water.]

Some of the simpler properties of River (or canal)—according to circumstances.

Boats, barges, or ships, with which children are familiar—according to circumstances.

Other ships, *e.g.*, Atlantic liners.

Coal—its simpler properties.

Coal—how obtained.

Coal—how transported and how used.

Coal-gas; it may be made in presence of the children.

Gas works and gas pipes.

Petroleum—how obtained; its simpler properties and uses.

Lamps and their dangers.

Common stones used in building and road-making.

Road-making and paving.

Quarries and quarrymen.

Railways—general sketch.

Engines and carriages.

The work of railway men.

Bricks—their size, shape, and manufacture; their size, etc., to be ascertained by children's measurement.

Bricklayer's work—arrangements of bricks in 14-inch wall and in 9-inch wall, shown with real bricks or with small wooden ones; mortar, etc.

The park or public garden—general sketch.

The park or public garden—one or two of its more conspicuous trees.

The park or public garden—one or two of its more conspicuous plants.

Comparison between calico and flannel.

Cotton and its manufacture.

Lancashire and the cotton district; mills.

Sheep-clipping and rearing.

The West Riding of Yorkshire; factories, etc.

(b)

Cart-horse.

Donkey.

Sparrow.

Rat or mouse.

Cat.

Plants grown in schoolroom (acorn in glass of water; mustard and cress; hyacinth in water or pot; fern).

Costermonger and what he sells.

Some common fruits sold in streets or shops, *e.g.*, pears and apples, strawberries, oranges, cocoanuts.

Things seen in grocer's window, *e.g.*, tea, sugar, coffee, currants, and raisins.

The baker and his work.

The milkman.

The addressing and posting of a letter.

The postman and Post Office.

The sweep and his work.

Dangers from fire and how they may be avoided.

The fireman and fire-engines.

'Bus or tram drives.

The policeman.

V.

Object Lessons for Country Schools.

(a)

The farmyard. Its buildings and their contents. Animals kept on a farm and their uses. Necessity of cleanliness, kindness, and suitable

The dairy and its contents. Butter and cheese making.

Bees. Bee-keeping.

Spring. Spring flowers. Work in the fields in spring. The cuckoo and the swallow. Record date of arrival.

Summer. Different kinds of leaves and fruit. Work in the fields in summer.

Autumn. Work in the fields.

A mill and the work of a miller.

Winter. Frost. Ice. Snow.

Birds. Singing birds, as the thrush and nightingale. Birds of prey, as the hawk. Swimming and wading birds, as the duck and heron.

Wild animals. The fox, hare, and rabbit.

Minerals. A mine. Three useful minerals.

The lessons on the seasons should correspond with the actual seasons of the year, and the different operations explained should be taken while each is in progress.

Leaves of trees may be dried by simply placing them between sheets of paper and pressing them. Their shapes may be used for the children to draw round on paper, which can afterwards be pricked and then sewn round.

(b)

Spring-time { The waking of nature.
The lengthening of daylight in the morning and evening,
the coming warm weather, birds singing, building their
nests, laying their eggs, the trees and hedges changing,
buds and leaves, the bloom on fruit trees.
The local wild flowers of spring. The daisy, primrose, bluebell.

Summer-time. The local wild flowers of summer.

Autumn. The local wild flowers of autumn.

Winter. The repose of nature.

The land. Woodland, meadowland, ploughland, moorland.

The sky.

A bird—covering, wings, beak, feet; motion; nest, eggs, food.

Local birds. Thrush or Blackbird, Lark, Robin, Rocks.

Birds which come for the summer.

Birds which come for the winter.

Local wild animals. Rabbit, Hare, Fox, Hedgehog.

Animals on a farm.

Our village.

The carrier's cart.

The cottage garden.

The stream or river, its banks, the birds and animals that live near it.

A fish.

A plant.

(c)

The garden in spring.

The farm in spring.

The garden in summer.

The farm in summer.

The garden in autumn.

The farm in autumn.

The garden in winter.

The farm in winter.

The weather and wind:

The soil; sunshine, air, rain, frost, manure.

The butterfly; colours, beauty, history.

Bees.

The farmer's pests.

The farmer's friends.

A pond.

The farmer's tools. The plough, drill, reaping machine.

The crops; grass, corn, root-crops.

Wheat.

The potato.

The oak tree.

The elm tree.

The apple tree.

Evergreen trees.

An insect.

The spider and his web.

A frog.

A ramble in a wood and what may be seen there.

The railway. [town.

Market-day in the neighbouring

A newspaper.

VI.

Object Lessons in the Science of Common Things.

(a)

Water.—How carried, jugs, bottles, barrels, spouts, funnels. Wells. Things that float, things that sink.

Solids.—Hard and soft, in the room and in clothing. Files. Hammer and nails. Buttons.

Powders.—Flour.

Pastes.—Paste, clay, putty.

Things porous.—Bread, sponge.

Things that melt.—Butter, tallow, sealing-wax. Ice, snow.

Water.—Drying clothes, breathing on slates, frost on the pane. The boiling of the kettle. The pot boiling over.

Things that dissolve.—Sugar, salt.

Air.—Bubbles, pouring water through funnel into empty bottle. A burning candle. Fans, blowing feathers. Paper windmills.

Forms of Strength.—The floor, joists and boards. Wooden bridges. Steps and stairs.

Things that stretch.—Elastic bands.

Things that bend.—Bow and arrows. Cord, ropes.

Machines.—Tops. Roller for pastry, for garden. Perambulator.

Movements.—Walking, running, leaping, creeping, crawling.

Musical Toys.—Harmonicon. Bell.

Water.—Pipes, taps, the fountain. Canals. Rafts, boats, anchors.

Solids.—Teeth, nails, and claws. Sand-paper. Pins, needles, awl, gimlet. Hook and eye.

Powders.—Chalk, pencil.

Pastes.—Mud in streets, brickmaking.

Things porous.—Brick, chalks, springs of water.

Things that melt.—Candle-making. Icicles.

Water.—Manufacture of salt from brine. Rain-drops, hail, spray, water-dust, clouds.

Things that dissolve.—The manufacture of sugar.

Air.—The chimney, draughts. Waves and breakers. Winged seeds. Shuttlecock, arrow and kite.

Forms of Strength.—The ceiling. The arch. Ladders.

Things that stretch.—A football.

Things that bend.—Cart springs. Paper clips. Spider's web.

Machines.—Hoop, fly-wheel of sewing machine. Mangle. Waggon. Bicycle.

Movements.—Swimming.

Musical Toys.—Musical box. Drum.

(c)

Water.—Syphon, pump. Oil, cream.

Solids.—Hinges, tyres, and axles. The grindstone. Screws and screw-drivers.

Powders.—Black lead.

Pastes.—Pottery.

Things porous.—Blotting paper, towels, wicks, earth.

Things that melt.—Lead, iron.

Water.—Salt lakes. Distillation of water. Clouds and rain.

Things that dissolve. Crystals, hard water, varnishes.

Air.—The pop-gun, the fire-engine. Winds. A sailing ship.

Forms of Strength.—The roof. Railway bridges. Cranes.

Things that bend.—Clock spring. Chains.

Machines.—The loom. Threshing machine. Rolling iron rails. Coining.

Movements.—Flying.

Musical Toys. Tin whistle. Sounds from stretched cord.

VII.

Measuring, Weighing, and Testing.

- A two-foot rule.
 Measurements of length—first by eye, then with rule. } Measurements
 Easy measurements of a square—first by eye, then } in
 with rule. } inches only.
 Easy measurements of rectangles.
 The wire-gauge.
 Callipers.
 Scales and weights.
 Weighing of common objects—first by hand, then with scales: weight
 in ounces only.
 Weighing letters.
 Plumb-line.
 Spirit level.
 Steam—observations on boiling water; condensation of steam, etc.
 Mercury—weight of; *cf.* drop of mercury and drop of water; effect of
 heat on mercury.
 Alcohol—effect of heat on it; its evaporation.
 Thermometer, its manufacture.
 Thermometer—uses; readings in ice, in boiling water, under the
 tongue, in schoolroom.
 A candle—its composition. The wick.
 Candle under bell-jar over water; candle in narrow-necked bottle.
 Chalk—where found; its origin.
 Chalk—its treatment with acid.
 Chalk—its reduction to quicklime with blow-pipe; lime-water.
 Sugar heated in test-tube; wood heated in test-tube.
 Sulphur heated in test-tube; lead heated in test-tube.
 Magnet and iron filings.
 The compass.

APPENDIX II.

RELIEF OF UNDERFED CHILDREN.

CIRCULAR TO LOCAL EDUCATION AUTHORITIES.

Circular 527.

BOARD OF EDUCATION, Whitehall, London, S.W.

Sir,—The Board of Education desire to call the attention of local education authorities to the enclosed circular issued by the Local Government Board to the guardians of the poor in England and Wales.

The object of the order referred to in the Circular and appended to it is to adapt certain provisions of the Poor Law to the relief of children who may be sent to public elementary schools by their parents in a state of destitution for want of sufficient nourishment.

The order provides that upon application made by certain persons specified in the order to the guardians or to the relieving officer, relief given to a child under sixteen may be considered as given by way of loan to the father.

Such application is described in the order as a *special application*, and local education authorities should note that it may be made :

To the guardians, or
To the relieving officer,

and may be made—

By managers, or

By a teacher duly empowered by the managers, or

By an officer duly empowered by the local education authority.

The nature and effect of the special application are sufficiently set out in the order and the accompanying Circular, but there are certain special points to which the Board of Education desire to call the attention of local education authorities.

A child may be sent to school without proper nourishment (1) because the parents are permanently impoverished, or (2) because temporary illness, loss of employment, or other unavoidable causes, have for the time incapacitated the parents from making necessary provision for the child, or (3) because the parents, though capable of making this provision, have neglected to do so.

The board feel that the second of these groups of cases will provide the most suitable field for the valuable work done by the various voluntary and charitable agencies which exist for the provision of meals for children who are sent to school hungry.

Cases coming under the first or third category may be proper subjects for a *special application* to the guardians or relieving officer.

Unless the case is so urgent that it must be dealt with immediately, special application should only be made after careful inquiry into the circumstances by those making the application, in order to ascertain to which class the case belongs.

Local education authorities who empower an officer, or managers who empower a teacher, to make special applications under the order, should be careful to inform the guardians and relieving officers of the Poor Law Union concerned of the name of the teacher or officer so empowered.

It should be borne in mind that in areas where distress and want are habitual or frequently recurrent, local education authorities by encouraging and promoting the establishment of proper organisations for inquiry where distress is alleged, and for distribution of relief where relief is needed, may greatly facilitate the treatment of cases of destitution, under whichever class they fall.

I have the honour to be, Sir,

Your obedient servant,

H. M. LINDSELL.

Circular.—Guardians.

UNDERFED CHILDREN AT PUBLIC ELEMENTARY SCHOOLS.

LOCAL GOVERNMENT BOARD, Whitehall, S.W.

Sir,—I am directed by the Local Government Board to state that attention has of late been drawn to the cases of children attending public elementary schools who are without adequate nourishment.

In connection with this matter the question has been raised as to the powers and duties of boards of guardians and their officers in relation to children in the circumstances referred to.

Powers and Duties of Guardians.

The guardians and their officers are, of course, only concerned with the relief of destitution, but if a child in any Poor Law Union is in fact destitute of necessary food, and application for relief is made to the guardians or the relieving officer by the child or by any responsible person on his behalf, it is the duty of the guardians, and, in a case of sudden or urgent necessity, of the relieving officer, to afford such relief as may be requisite, subject to the regulations issued by the board or their predecessors with regard to the administration of relief which are in force in the union. And this is so, even although the parent is able to provide the food required, if in fact he fails to provide it.

The Board realise, however, that where the child resides with a parent who is able to supply the requisite food but neglects to do so, the cost of the relief given ought in general, and especially where the relief given is habitual, to be borne by the parent and not to fall on the rate-payers. The object would be secured if the relief was given on loan and the cost was recovered from the parent. This could not be done in all cases, but in order to meet the object in view as far as possible, the board have issued a new order called "The Relief (School Children) Order, 1905," dealing with relief to children in public elementary schools. Copies of the order are enclosed, and for convenience of reference it is also printed as an appendix to this Circular.

Effect of Order.

The order deals with cases where an application is made to the guardians directly or otherwise, or to a relieving officer, by the managers, or by a teacher duly empowered by the managers of a public elementary school, or by an officer duly empowered by the local education authority, having for its object the allowance of relief to a child under the age of sixteen who is in the course of attendance at a public elementary school. Such an application is defined as a "special application" by Article I. of the order, but, as will be seen from Article VII., the order only deals with a special application made where a child to whom it relates is not blind, or deaf and dumb, and resides with his father and his father is not in receipt of relief other than relief given in accordance with the order.

Where a special application is made to the guardians and the case is not one of sudden and urgent necessity, Article II. of the order requires them to take steps to ascertain whether relief to the child is or is not rendered necessary by the habitual neglect of the father to provide adequate food for the child. If the guardians are satisfied that it is, then any relief or the cost price of it given in accordance with the order must be given or considered as given by way of loan. If, however, the guardians are not satisfied that the relief is rendered necessary by the habitual neglect of the father to provide adequate food, it will be in their discretion to determine whether or not the relief shall be given on loan. In any case in which the guardians decide to give relief in accordance with the order and the relief is given on loan, it will be incumbent on them after making their order upon the application and before the relief is given, to cause all practicable steps to be taken to notify to the father the fact that the relief will be given or considered as given by way of loan. This will afford the father an opportunity of undertaking to provide without relief all that the circumstances of the case require. If he in fact makes

this provision, it will obviously be unnecessary for the relief to be given. The article further provides that where the relief is given otherwise than on loan, a notification shall be made to the father before the relief is given, so that in this case also the father may have an opportunity of undertaking to make proper provision for giving food to the child.

In neither case can the guardians allow relief for a longer period than one month, but the application can be renewed if necessary.

Proceedings against Father.

Where a special application is renewed within a short time, say six months after the expiration of the period for which the relief has been given, and further relief has to be allowed, or where within this period special application is made and relief is given in respect of some other member of the same family, and the cause of the application is the habitual neglect of the father to provide food, the board think that the guardians should consider whether the case is one in which proceedings should be taken against the father either under the Vagrancy Act, 1824, or the Prevention of Cruelty to Children Act, 1904. If they proceed under the former Act they must be able to show that the father is able to maintain his family by work or by other means and that he wilfully refuses or neglects to do so, and that in consequence the child has become chargeable. If they proceed under the Prevention of Cruelty to Children Act, they must be in a position to show that the father is a person who has the custody, charge, or care of the child and who neglects the child or causes him to be neglected in a manner likely to cause him unnecessary suffering or injury to his health.

Cases of Sudden and Urgent Necessity.

Cases of sudden and urgent necessity in which a special application is made to the guardians do not come under Article II.; nor do cases of sudden or urgent necessity in which a special application is made to the relieving officer. These are dealt with in Articles III. and IV., which provide that the relief shall be given on loan, but that the guardians or the relieving officer shall at the time of making the order or giving the relief, as the case may be, or as soon as possible afterwards, take all practicable steps for notifying to the father the fact that the relief is given by way of loan.

Effect of Order on Existing Regulations.

It is evident that where relief is given by way of loan in cases of the kind now under consideration, the provisions of any orders and regulations in force in the union, which require that where relief is given the able-bodied father shall be relieved only in the workhouse or be set to work by the guardians, cannot be observed. Article V. consequently dispenses with these requirements in such cases. It must not be understood that the board desire that provisions of the kind should be relaxed where they can be complied with, but it appears to them that they are inapplicable in the cases in question, and that in lieu of them reliance must be placed on the fact that the relief will only be given on loan, and that it will be the duty of the guardians, under Article VI., to take proceedings for the recovery of it, except in any special case in which the guardians report the circumstances to the board and the board approve of their abstaining from

taking proceedings. The object of the exception is to meet cases in which it would be obviously useless to institute proceedings. Where application is made to the board for approval under this article it will be necessary that the circumstances, which, in the opinion of the guardians, justify the application as regards the particular case, should be fully stated.

Recovery of Relief given on Loan.

The relief given to a child in pursuance of a special application will be relief to the father, and under Section 8 of the Poor Law Amendment Act, 1848, the relief given on loan or the cost price of it can be recovered from the father in the county court, whilst Section 59 of the Poor Law Amendment Act, 1834, affords a means by which any master or employer from whom any wages are or may become due to the father may be required to pay to the guardians the amount of any relief given on loan or so much of it as from time to time remains due or unpaid.

Limitations of Order.

It will be observed that the order does not apply to a child who is blind, or deaf and dumb, or in any case to the mother or any other relative of the child besides the father. It has been thus framed in view of the terms of Section 56 of the Poor Law Amendment Act, 1834, and of the limitations in Section 58 of that Act. Moreover, it only applies where the child is resident with the father.

The order is not intended to interfere with the exercise by the guardians of their existing powers and duties. For instance, the case of a child who resides with a father in receipt of relief does not come within the order; but it would be incumbent on the guardians to afford relief to the child if in fact he was destitute of necessary food, and this circumstance was brought to their knowledge.

Mode of Giving Relief.

The precise way in which relief should be given to underfed children in consequence of special applications under the order must obviously for the most part depend on the local circumstances. It is important that the relief should not be given in money where this can possibly be avoided, and that the arrangements made should be such as to secure to the utmost extent practicable that the child shall himself get the full benefit of the relief ordered. Where the relief is given by the relieving officer on his own responsibility of course it cannot be given in money.

The guardians will no doubt find it desirable to avail themselves of any charitable organisation which exists in the locality for the provision of meals, and to arrange with them for the supply of food to the child on the presentation of a ticket.

In other cases an arrangement might be made with some shopkeeper to supply the food on presentation of an order from the relieving officer.

The board realise the difficulties of the subject, but they trust that boards of guardians, particularly those of populous unions in which cases of underfed children more frequently occur, will endeavour to co-operate with the local education authorities in dealing with really necessitous cases, whilst exercising due discrimination so as to avoid the pauperisation and consequent disfranchisement of parents who ought not to be brought under the Poor Law.

Copies of this circular are enclosed and the board request that one of them may be given to each relieving officer. If further copies are required for this purpose the board will be prepared to supply them. A parliamentary paper containing this circular will be issued, and copies of it can then be purchased, either directly or through any bookseller, from Wyman and Sons, Limited, 109, Fetter Lane, Fleet Street, E.C.

I am, Sir,

Your obedient servant,

S. B. PROVIS, Secretary.

The Clerk to the Guardians.

APPENDIX III.

THE RELIEF (SCHOOL CHILDREN) ORDER, 1905.

To the GUARDIANS of the POOR of the several POOR LAW UNIONS, and of the several OUT-RELIEF UNIONS in ENGLAND AND WALES.

And to all others whom it may concern.

Whereas by certain general orders and other orders made by the Poor Law Commissioners, and the Poor Law Board, and by us, the Local Government Board, regulations have been prescribed with respect to the relief of the poor;

And whereas by Section 56 of the Poor Law Amendment Act, 1834, it is enacted that all relief given to or on account of the wife, or to or on account of any child or children under the age of sixteen, not being blind or deaf and dumb, shall be considered as given to the husband of such wife, or to the father of such child or children, as the case may be;

And whereas by Section 58 of the said Act, it is enacted that any relief, or the cost price thereof, which shall be given to or on account of any poor person above the age of twenty-one, or to his wife, or any part of his family under the age of sixteen, and which we by any rule, order, or regulation declare or direct to be given or considered as given by way of loan, and whether any receipt for such relief, or engagement to repay the same, or the cost price thereof, or any part thereof, shall have been given or not by the person to or on account of whom the same shall have been so given, shall be considered and the same is by the said section declared to be a loan to such poor person;

And whereas it is expedient that such provision as is hereinafter set forth be made with respect to the relief ordered or given in certain cases;

Now therefore, in the exercise of our statutory powers in that behalf, and in relation to each poor law union, and to each out-relief union in England and Wales, we do hereby order, declare, and direct as follows:

ARTICLE I.—In this order, unless the contrary intention appears—

The expression “the guardians” means, as the case requires, the guardians of the poor of a poor law union, or the guardians of the poor of an out-relief union:

The expression “the orders and regulations” means and includes all rules, orders, or regulations made by the Poor Law Commissioners, the Poor Law Board, or by us, with respect to the relief of the poor, and

applicable for the time being to a poor law union or to an out-relief union: and

The expression "special application" means an application made to the guardians, directly or otherwise, or to a relieving officer by the managers, or by a teacher duly empowered by the managers, of a public elementary school, or by an officer duly empowered by the local education authority, and having for its object the allowance of relief to a child under the age of sixteen, who is in course of attendance at a public elementary school.

ARTICLE II.—(1) Where a special application is made to the guardians, directly or otherwise, and the case is not one of sudden and urgent necessity, they shall take steps to ascertain whether the allowance of relief to the child to whom the special application relates, is or is not rendered necessary by the habitual neglect of the father to provide adequate food for the child.

(2) Any relief or the cost price of any relief given in any such case in accordance with this order shall be given or considered as given by way of loan, if the guardians are satisfied that the case is one of such habitual neglect as aforesaid, and, if the guardians are not so satisfied, may be given or considered as given by way of loan, where the guardians determine that the relief shall be so given or shall be considered as so given.

(3) Where the guardians determine to give relief in accordance with this order, and where by virtue of any provision of this order, or of any determination in pursuance of this order, the relief will be given or considered as given by way of loan, the guardians shall, after making their order upon the special application, and before relief is given in compliance with their order, cause all such steps as are practicable to be taken for the purpose of notifying to the father of the child to whom the special application relates the fact that the relief will be given or will be considered as given by way of loan.

(4) Where the guardians determine to give relief in accordance with this order, but the relief will not by virtue of any provision of this order, or of any determination in pursuance of this order, be given or considered as given by way of loan, the guardians shall, after making their order upon the special application, and before relief is given in compliance with their order, cause all such steps as are practicable to be taken for the purpose of notifying to the father of the child to whom the special application relates, the fact that the relief given to or on account of the child will be considered as given to the father.

(5) The guardians shall not, without a fresh application, allow any relief in pursuance of this article for a longer period than one month.

ARTICLE III.—Where a special application is made to the guardians, directly or otherwise, and the case is one of sudden and urgent necessity, any relief or the cost price of any relief given in any such case in accordance with this order shall be given or considered given by way of loan, and the guardians, at the time of making their order upon the special application, or as soon as possible after the relief is given, shall cause all such steps as are practicable to be taken for the purpose of notifying to the father of the child to whom the special application relates the fact that the relief is given or will be considered as given by way of loan.

ARTICLE IV.—Where a special application is made to a relieving officer, and the case is one of sudden or urgent necessity, any relief or the cost price of any relief given in any such case in accordance with this order shall be given or considered as given by way of loan, and the relieving officer shall, at the time of giving the relief, or as soon as possible after the relief is given, take all such steps as are practicable for the purpose of notifying to the father of the child to whom the special application relates the fact that the relief is given or will be considered as given by way of loan.

ARTICLE V.—Where by virtue of any provision of this order, or of any determination in pursuance of this order, any relief or the cost price of any relief given upon a special application will be given, is given or will be considered as given by way of loan, nothing in the orders and regulations shall apply or have effect so as to require that, as a condition of the giving of the relief, the able-bodied father of the child to whom the special application relates shall be relieved only in the workhouse, or shall be set to work by the guardians and be kept employed under their direction and superintendence so long as he continues to receive relief.

ARTICLE VI.—The guardians shall take proceedings for the recovery of any relief or the cost price of any relief which, by virtue of any provision of this order, or of any determination in pursuance of this order, is given or is considered as given by way of loan, except in such case in which the guardians report the circumstances to us, and we approve of their abstaining from any such proceedings.

ARTICLE VII.—Nothing in this order shall apply or have effect in relation to any case, other than that of a child who is not blind, or deaf and dumb, who resides with his father, and whose father is not in receipt of relief other than relief given in accordance with this order.

ARTICLE VIII.—This order may be cited as “The Relief (School Children) Order, 1805.”



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